The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 25. NO. 49. TULSA, OKLAHOMA, APRIL 28, 1927

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Threats of Higher Crude Production

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Bowlegs and Seal Beach Expected to More Than Offset Natural Declines Elsewhere in Next 60 Days

By James McIntyre

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

Twelve new wells in the Texas Panhandle fields averaging 951 barrels each in initial production; big wells in the Greater Seminole area in Oklahoma including one which started at 225 barrels an hour; big wells in Spindletop, Texas, which caused the production of that field to increase materially; the threat that the Bowlegs Pool in Seminole County, Oklahoma, may reach 150,000 barrels in production in the next 60 days and that the Seal Beach Pool, in California, is expected to reach a 100,000-barrel production before it settles down, are a few of the high spots in the oil news of the past week.

There was little change in the total of crude oil production as compared with the previous week. The Mississippi Valley floods have had a deterring effect on some fields, high water being especially felt in Smackover, Arkansas.

Up to the writing of this review no important crude purchasing company had met the Magnolia Petroleum Co.'s 15-cent and 10-cent cuts in the price of crude oil made in the northern fields of the Mid-Continent division. The Magnolia company's price for 38 gravity crude, the average grade in the territory affected, has been reduced to $1.07 per barrel while all other companies are paying $1.32 for oil of the same grade.

There was no great increase in the production of any of the producing divisions in the past week. Oklahoma shows 6,527 barrels a day more than in the previous week; the Gulf Coastal fields 4,184 barrels and the Rocky Mountain division 6,315 barrels. Declines were reported from Louisiana, Arkansas, North Central and West Texas, East Central Texas and the Texas Panhandle.

Drilling operations outside the great flush fields show a steady falling off with more shut-down drilling wells reported as the weeks pass and oil producers and wildcatters see nothing ahead but more and more oil.

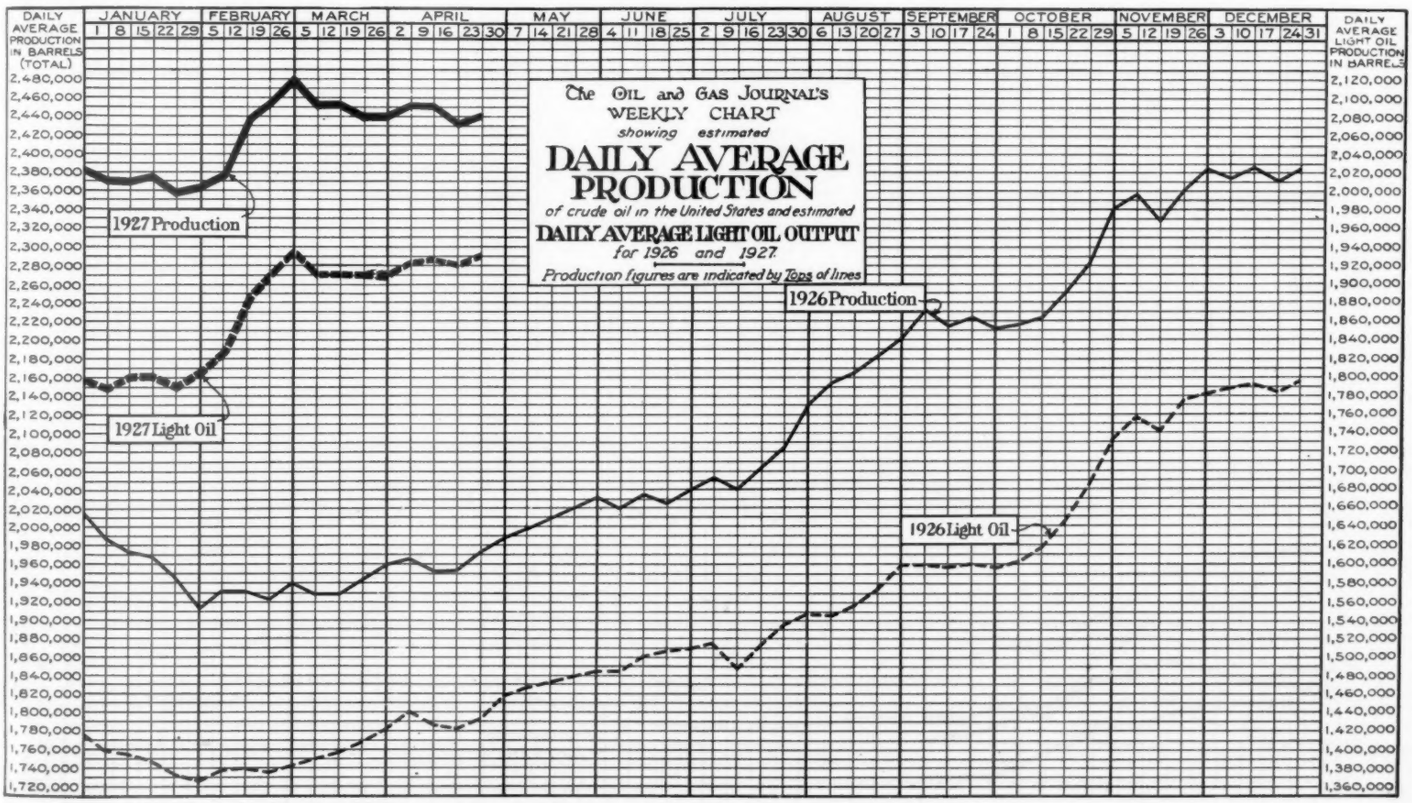
It is estimated that the production of crude in the United States for the 12 months ending April 30, will be in the neighborhood of 830,300,000 barrels. The production for the 12 months ending April 30 last year was 756,478,000 barrels showing a gain in the past 12 months of 73,822,000 barrels over the previous 12 months.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended April 23 and a comparison with the previous week follo ws:

	April 23		April 16	
Oklahoma—	**Light**	**Heavy**	**Light**	**Heavy**
Tonkawa	23,160	.....	23,145	.....
Burbank	42,440	.....	43,305	.....
Other Osage Fields	35,020	.....	35,075	.....
Cushing and Shamrock	21,160	.....	21,140	.....
Bristow and Eastern Bristow	27,240	.....	27,245	.....
Cromwell	13,200	.....	13,240	.....
Garber	16,600	.....	16,785	.....
Blackwell-Braman	13,780	.....	13,905	.....
Seminole	333,230	.....	325,910	.....
Wewoka	17,820	.....	17,330	.....
Northern Miscellaneous	111,310	.....	110,715	.....
Southern Fields	66,600	.....	67,040	.....
Total Oklahoma	721,560	.....	714,833	.....
North Louisiana	38,085	10,780	41,175	11,165
Arkansas	24,260	84,225	24,770	90,760
North Central and West Texas	270,810	.....	271,300	.....
Texas Panhandle	119,925	.....	118,545	.....
East Central Texas	34,575	.....	38,346	.....
Kansas	115,440	.....	113,810	.....
Total Mid-Continent Area	1,324,655	95,005	1,322,781	101,925
Gulf Coast	.....	146,979	.....	142,785
Southwest Texas	.....	37,930	.....	37,975
Eastern	106,000	.....	106,000	.....
Rocky Mountain Area	87,480	.....	81,165	.....
Ca'ifornia—				
Santa Fe Springs	43,000	.....	43,500	.....
Long Beach	93,000	.....	92,500	.....
Torrance	6,000	18,000	6,000	18,000
Huntington Beach	73,000	.....	72,500	.....
Dominguez	17,500	.....	18,000	.....
Rosecrans	11,000	.....	12,000	.....
Inglewood	24,000	13,000	24,000	13,000
Ventura Avenue	52,000	.....	51,500	.....
Seal Beach	38,000	.....	36,000	.....
Remainder of State	59,000	197,000	59,000	199,000
Total California	416,500	228,000	415,000	230,000
Total United States	1,934,635	507,914	1,924,946	512,685
Grand Total		2,442,549		2,437,631

→ **Total Increase, 4,918 Bbls.; Light Oil Increase, 9,689 Bbls.** ←



Minor Changes in Oklahoma Market

Gasoline Prices Firm as Trade Awaits Developments in Crude Situation and Better Weather Conditions

By C. O. Willson

A waiting attitude on the part of both sellers and buyers with no important changes in prices featured the week's developments in the Oklahoma (Group 3) market.

Although the trade has been expecting for several weeks that the time would shortly arrive when the refined market would cease to be dominated by the fear of possible changes in the crude market, it is apparent that this hoped-for condition is yet to materialize so far as the Oklahoma refining area and other refining groups of the Mid-Continent section, are concerned.

When the Magnolia Petroleum Co. on April 20, announced an additional 10-cent reduction in crude schedules making a total differential of 25 cents between its prices and those of other major buyers in the States of Oklahoma, Kansas and North Central Texas, it again brought the crude situation to the fore as the most important factor around which the entire refined market hinges for the immediate future at least.

Both the sellers and buyers of refined products when asked regarding the market for their products, generally turn the discussion to the crude oil situation indicating that is the end of their business in which they are primarily concerned at the present time. Since this situation prevails the writer will attempt to summarize briefly some of the predictions made regarding the crude market and the various angles taken relative to the probable reflection in the refined market.

It can be said in the first place that a majority of the trade now expects another general downward revision in the crude price schedules of the Mid-Continent. This revision has been expected daily by many ever since the latest Magnolia reduction was announced. Others are not expecting the reduction until the middle of May when it is anticipated that a new peak in Oklahoma crude production will materialize due to the bringing in of new flush production in the Bowlegs district of the Seminole area.

Not all expect the Magnolia schedule to be adopted by the other large buyers although a substantial revision, especially in the high gravity grades, is predicted.

Those who view the crude situation from this angle generally agree that this probable reduction will not materially affect the tank car gasoline market in the Mid-Continent. As has been outlined in these columns previously a majority are of the opinion that the gasoline prices at the refineries have already been discounted within one-fourth cent all possible crude and tank wagon price developments. It is agreed, however, that still lower crude prices would tend to prevent any price recovery in the gasoline tank car market.

Lower crude prices will no doubt force a general reduction in tank wagon and service station prices and this development obviously would tend to prevent higher tank car prices. An exceptionally wide margin between tank wagon and service station prices and tank car prices already exists. It is sometimes pointed out in this connection that with the quantity discount plan which is general, especially in the states of the Middle West, that the old comparisons between tank wagon and tank car prices no longer apply. This does not alter the fact, however, that an exceptionally wide margin exists between the refinery price and the price paid by the ultimate consumer, a situation which has its dangers especially if crude schedules are further reduced.

Lower crude prices will make it possible for an increasing number of refiners to operate profitably. This will tend to increase refinery operations in the Mid-Continent. This would mean a greater

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REFINED MARKET BAROMETER

No price changes of a general nature developed during the past week in refined markets throughout the United States. The gasoline tank car market continues weak, although several refining areas reported firm prices for the week. In the Los Angeles area, conditions largely local, have resulted in gasoline prices at refineries which are lower than any in any other refining center. Price concessions were also reported from refiners whose normal market outlets have been affected by adverse weather conditions. Additional reductions in gasoline and kerosene export prices became effective in the East. Developments in the domestic kerosene market were not encouraging, as prices at refineries were lowered when any changes were made. For the first time in several weeks, fuel oil and gas oil quotations at interior refineries were generally firm, with no changes in coastal prices. A better movement in lub oils were reported from areas where previously weakness has been apparent. Few price changes materialized. Wax prices are unchanged.

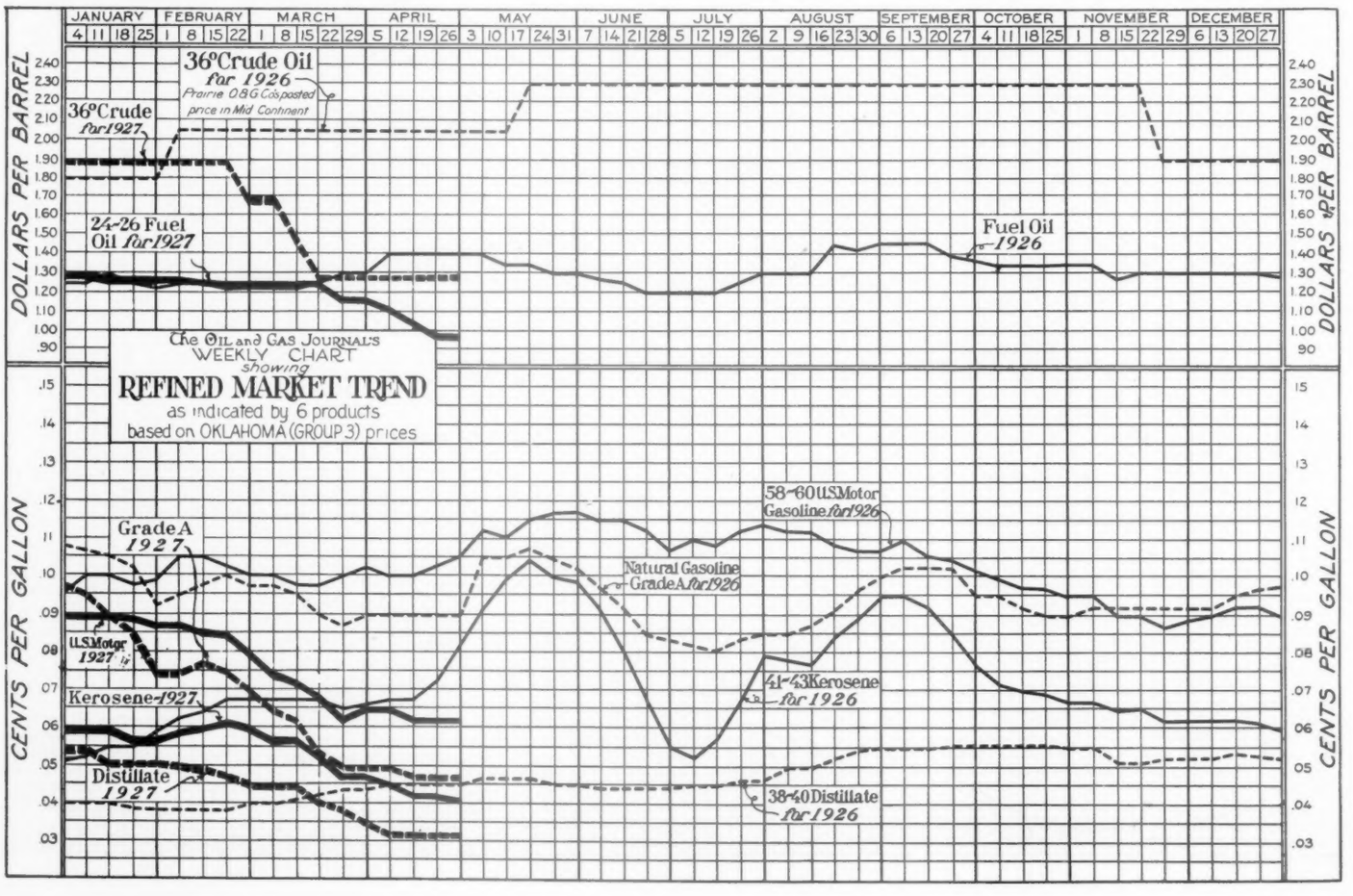
Mid-Continent—Lower prices on gasoline largely confined to the North Louisiana and Arkansas areas, where some plants have been unable to move their output readily due to floods. No important changes in natural gasoline prices. Kerosenes weak and prices lower. Fuel and gas oils fairly firm. Lubs firm.

Atlantic Seaboard—General market not encouraging. Considerable price cutting both in gasoline tank car and tank wagon markets. Kerosene unchanged for an additional one-half cent reduction in export prices. Lower fuel oil and gas oil prices expected. Good movement of lub oils.

Pennsylvania—Neutrals only product in good demand since latest reduction in Pennsylvania crude prices. Gasolines and naphthas weak. Fuel oils and kerosenes lower in price. Bright stocks and wax continue weak.

California—Market demoralized with price situation unsettled. No changes in fuel oils and kerosenes.

Chicago—Gasoline market quiet and price unchanged. Fuel oil and gas oils firm. Kerosenes weaker.



A Challenge to the Oil Industry

Overproduction Must Be Regulated by Co-operation or Government Supervision. Leaders Should Develop Plan

Tulsa, Oklahoma,
April 21, 1927.

To The Oil and Gas Journal:

The oil industry with a world-wide and almost unlimited market for its products is as a whole losing money.

Not less than ten billion dollars are invested in the petroleum business. No other such sum is at the mercy of such unstable conditions as in the oil business. The iron and steel industries, subject to the vicissitudes of the demand, manage to maintain prices that result in an adequate return on the investment. The cotton industry is advised and urged by the Government and public opinion to curtail its production so that profitable prices may be obtained. The tobacco industry, the lumber trade, the packing business and the cement interests find means of adjusting their production so that no large amount of unnecessary finished products are flooding their markets. The oil industry alone appears incapable of helping itself.

E. B. REESER
President, Barnsdall Corporation

Is it because the executives of the large oil companies cannot see where the trouble lies or do they lack the willingness to get together as leaders of other industries do?

Is it because the petroleum industry has been so intimidated by official restriction and threat of prosecution that oil men are afraid to attempt to use the remedies that other industries have applied?

We have recently experienced situations which with proper spirit and co-operation would have saved the industry from its present chaotic state and in each case the fear of government prosecution has restrained the leaders from taking the necessary steps to conserve this wonderful resource.

If fear of government prosecution is the real reason must it be continued indefinitely, regardless of the disastrous results that will follow with obvious loss to those who have invested their money in it? These investors include the leading financial, industrial and commercial interests in the country. Is there any other investment which would be permitted to continue to run along under such conditions without an effort being made to correct it?

The Government is demanding conservation of our oil resources and at the same time pointing its finger to the penitentiary for those who would attempt to put into effect practical measures of conservation which would enable them, large or small, to carry on operations on a reasonably profitable basis.

Oil men hesitate to get together to discuss industrial problems lest they be charged with the violation of the antitrust laws. No such fear seems to have possessed the leaders of the steel industry or executives in other industries who meet in conference and exchange information which permits them to operate their business with regard to supply and demand and thus escape the repeated depressions that bring the oil business to the door of bankruptcy.

The opinion seems to prevail that anything done to restrict output will be a violation of the antitrust laws. If this is true is it not just as much a violation of the law to eliminate competition by causing the failure of many small units as a result of the conditions brought about by overproduction? Ultimately the public must pay the cost.

The oil industry is facing the most critical condition in its history because of production without regard to demand. Is it to be a "survival of the fittest" or will the leaders do those things which are necessary to correct the situation?

Wasteful duplication in marketing outlets exposed by C. B. White is an economic indictment of the business sense of the industry.

We have been warned that by continuing the present method the outcome must be one of two things: Co-operation or government supervision. If the industry does not want the one it must accept the other.

Cannot The Oil and Gas Journal open its pages for a discussion of the situation with a view of developing a plan which will prevent recurring situations like the present wasteful and almost criminal dissipation of this admittedly most important natural resource?

E. B. REESER.

Co-operative Wildcatting in Texas

Five Companies and Firms Testing Structures on Burnett Ranch in King County. Share in Results

By C. D. Lockwood

One of the most unusual co-operative wildcatting campaigns ever staged in the Mid-Continent is that now under way in King County, about 100 miles west and a little south of Wichita Falls, Texas. On a major uplift with an axis trending northwest and southeast, five wells are being drilled simultaneously by major companies and strong independents, and two other wells are being started. Only one other test has ever been drilled in the county and the nearest production is in the South Vernon Field of Wilbarger County and the Woodson Pool of Throckmorton County, more than 50 miles away.

The five wells comprising the main play in King County are now being drilled by the Phillips Petroleum Co., Sinclair Oil & Gas Co., White Eagle Oil & Refining Co., Midwest Exploration Co. and Gibson & Johnson, independent operators of Abilene, Tex. Each concern, in addition to the acreage around its own drilling test, has a spread around each of the other four wildcats so that if any one well opens a pool, all five of the King County pioneers will share in the discovery, or will stand a good chance to do so. It is common practice, of course, for the larger companies to buy protection acreage around drilling wildcats but few of them are financially able to protect themselves on all of the tests in any given county. In this case, each of the five concerns is sitting on top of five good-looking structures and if any oil exists in the central part of King County one of the five is likely to find it or at least obtain evidence that it exists in the locality.

An interesting feature of this play is the fact that four of the tests are located on the famous 6666 Ranch owned by the S. B. Burnett Estate. Petroleum seems to have a peculiar affinity for properties belonging to this estate, as evidenced in Wichita and Carson Counties, and it is generally conceded by superstitious oil men that if any hidden pools exist in this part of Texas they will undoubtedly be found on the Burnett ranch.

This "Four-Six" Ranch, as it is known, is one of the few remaining cattle ranches where cowboys and chuck wagons still flourish. Wild horses roam the hills and coyotes fill the night with their mournful howl. The country is rough and broken and the greater part of it cut up by small streams. Sheer cliffs in many places rise abruptly from 50 to 100 feet and the maximum relief is about 300 feet. In other words, King County looks like ideal oil country to an operator who has spent much of his time in the Osage hills of Oklahoma. Most of the county is good for nothing much else but grazing and drilling.

The little town of Guthrie is scarcely more than a village and is noted chiefly for the palatial ranch house erected by the Burnett heirs at a cost of approximately $200,000. Here the foreman of the ranch resides and it is the chief ambition of all travelers who must pass through this section of the country to be invited to put up for the night at the "hotel" as it is familiarly known. The foreman is a pleasant host and a typical West Texas cattleman of the pioneer school and he operates the cattle ranch on a strictly business basis.

Because this is one of the few big cattle ranches left in this country, the Burnett heirs have not been particularly enthusiastic about turning it over to the wildcatters. In fact, they have not really wanted any drilling done on it at all. Oil has already brought them immense wealth in other parts of the state and they have actually preferred to have the oil men leave this ranch alone. That doesn't sound reasonable to the average man but it's a fact according to one of the operators who helped map out the present drilling campaign.

Matthews the Pioneer

R. S. Matthews of Fort Worth signed up the original contracts with the Burnett Estate and commissioned J. S. Hudnall and G. W. Pirtle consulting geologists of Brownwood, Tex., to detail the surface structures. Gibson & Johnson, of Abilene, were then interested in the play and they, in turn, interested the companies which are now co-operating in the campaign.

As the accompanying structure map shows, there is a wide variety of structural conditions in this region favorable for the accumulation of oil and gas, ranging all the way from plunging noses to closures. Concerning the geology of the area, Hudnall & Pirtle's report shows that "the rocks exposed in this area are Permian in age and belong to the Double Mountain Series as defined by Cummins and mapped by Beede of the University of Texas. The stratigraphic section consists of shales, gypsum beds, dolomites and limestones. The limestone and dolomite beds form prominent escarpments that have a very sinuous trend due to the nature of the dip and the great relief. The beds are distinct, easily recognized and followed.

Little Subsurface Information

"Little is known concerning the subsurface geology in the immediate area. The log of the nearest well located near the north line of King County shows a predominance of shale alternating with thin limestone and dolomite beds to a depth of 1,400 feet and a predominance of limestone and sandy lime to the completed depth of 3,500 feet. Three sand members were encountered at depths of 2,620-45 feet, 2,665-75 feet and 3,425-40 feet. The last sand is perhaps located in the top of the Pennsylvania. Logs to the east and southeast, in Knox and Stonewall Counties, show considerably more sand than the California Co.'s log gives.

"The regional dip in this country is about 25 feet to the mile slightly north of west. The exact distance to which this dip continues is not known, however, it is known to continue from 50 to 75 miles. With such a long regional dip the ac-

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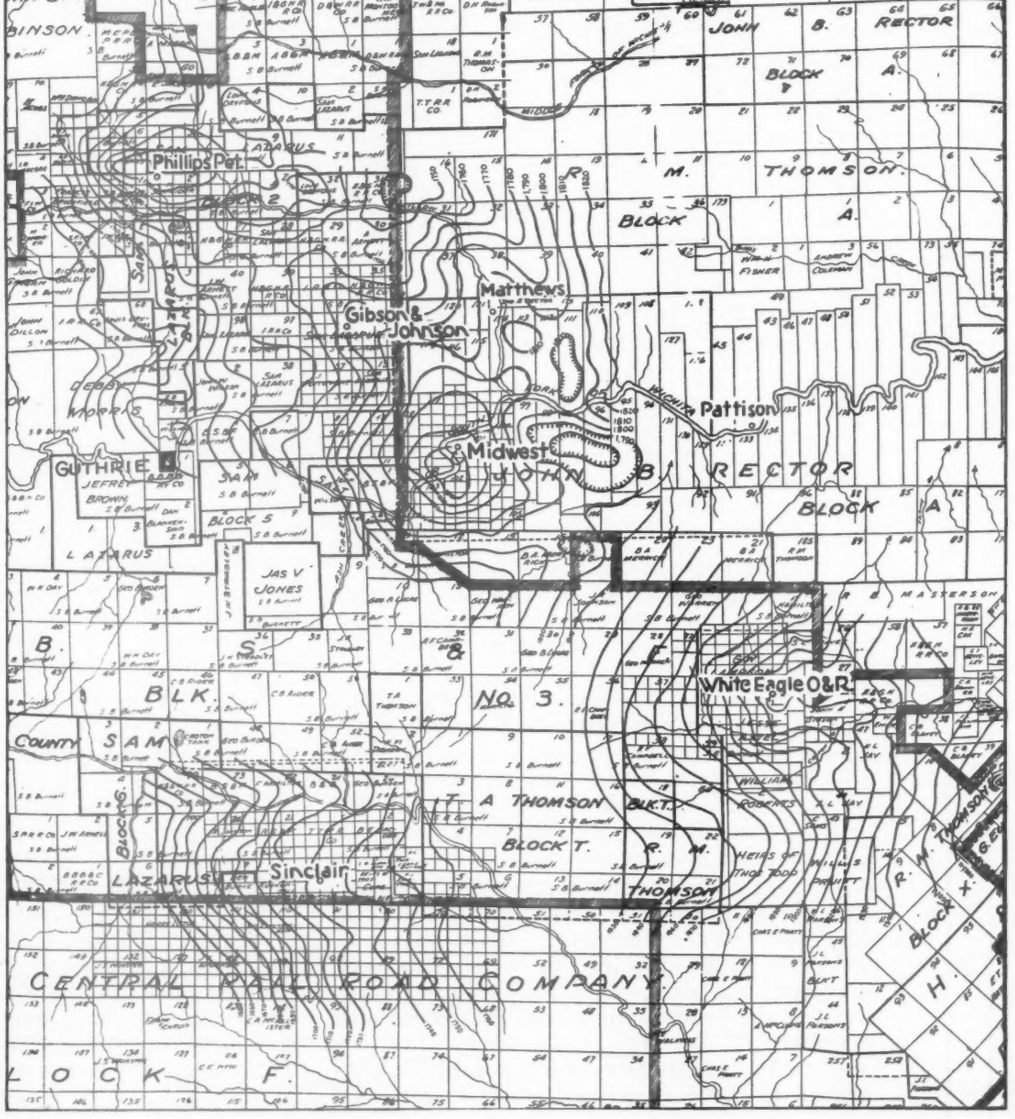

Map of the district in which the Phillips Petroleum Co., Sinclair Oil & Gas Co., White Eagle Oil & Refining Co. Midwest Exploration Co. and Gibson & Johnson a e conducting c co-operative wildcatting campaign in King County, in western Texas, showing locations of t ie five tests. These tests are being drilled 100 miles west and a little south of Wichita Falls.

Big Increase in Volume and Utility

Producing 150 Per Cent More Crude With 400 Per Cent More Gasoline Yield Than in World War Times

By James McIntyre

The immensity of the petroleum wealth of the United States staggers the world. We are producing oil at the rate of 894,000,000 bbls. a year. If all the shut-in and pinched-in production were permitted to flow freely we could produce easily at the rate of more than 900,000,000 bbls per year.

If the great Seminole area were to suddenly exhibit a great and rapid decline it could be made up by western Texas operators with a drilling campaign in several counties, some of which have what is believed to be a great storehouse of oil at comparatively shallow depth. And Seminole shows no indications of declining, but on the other hand gives every indication of not having yet reached its peak in production.

There is no sign of a let up in the quantity of crude which the industry must take care of this year. First-of-the-year predictions of a possible production of 875,000,000 bbls., this year seem conservative at this time.

Every wildcat well in Seminole or Pottawatomie County, Oklahoma, or in several western Texas counties, is a serious threat of more oil in large quantity, and even east central Texas is looked at with concern as the industry awaits the testing out of the Humble Oil & Refining Co.'s salt-dome well in Cherokee County, which showed early indications of being good for perhaps 8,000 bbls. a day.

Causes of Overproduction

Why are we producing so much oil? Because new sources of oil have been found; because of the American custom of small lease holdings which makes offset wells necessary and because American oil men are afraid to get together for the purpose of conserving the oil in the ground for fear of breaking a law.

In the United States the landowner is also the owner of everything under and over his land. He can lease it for any legitimate purpose. An oil lessor is obliged by the terms of his contract with the landowner to offset every commercial oil well drilled along the lines of adjoining properties. Drilling for oil is a risky business financially and the owner of a solid block of leases, composed perhaps of many farms of as many ownerships, often finds it either necessary or expedient to sell off a part of the acreage in order to raise all or a part of the money to drill the first well. A solid block becomes a checkerboard—one lessee becomes a dozen, perhaps a score of leaseowners. If an oil pool is opened it is followed by the drilling of offsets which necessitate other offsets and in a short time there are many wells in the process of drilling and in due course a host of completions.

Early Day Leasing

In the early years of the oil business it was the custom to lease in small plats. It was at first deemed by some quite proper and business-like to lease land enough for the location of one rig. An acre or so was enough. An oil man was plunging when he leased a whole farm. The ambition of some men was to own an oil well, not a flock of them. When the Phillips Brothers of Butler, Pa., blocked out scores of farms they caused a sensation. Through the years that it took to develop the New York, Pennsylvania, West Virginia, Indiana, Illinois and Kentucky Fields the custom of checkerboarding or "scattering the bets," remained the favorite way to operate a field. Even when large tracts were made available in Kansas and later in Oklahoma and Texas, their owners in many cases sold much of their leaseholds in scattered parcels in order to divide the financial risk until by the time the first well was ready for spudding the name of practically every prominent operator in the region could be found on a map of the area. They have been notable exceptions to this rule, to be sure, but they have been few.

Over-Drilling East and West

The enormous Bingham estate in McKean County, Pennsylvania, which lies over thousands and thousands of acres of oil-producing sand was leased piecemeal. It is more solidly owned now, because well-financed companies bought out the many producers that developed the leases, down to a settled production stage. But in the heydey of the Bradford Field oil men "drilled their heads off" on these small leasholdings, because of the necessity of offsetting, and ran the production up to a point where Bradford was producing about 60 per cent of all the oil in the world and the price went down to 55 cents per barrel and nobody made any money except the purchasers of the bargain oil.

It was the same in Glenn Pool, Oklahoma, in the early years of this century. Producers ran the production up to 120,000 bbls. a day and the market went below 40 cents per barrel. Then came Cushing-Shamrock with a production of 300,000 bbls., a day and oil running all over the place and the price down again to 40 cents. This field, like Glenn Pool, was held in quarter sections or "parts thereof" with the inevitable result. They just couldn't stop drilling.

The town lot drilling in California and the development of the Mexia fault zone fields with their little 5-acre subdivisions with two wells to five acres, and with no one company owning a decent sized block which could be developed conservatively were even worse examples of the American producer's inability to curtail production. As a result it has been a feast or a famine in crude from the beginning, with the feasts largely predominating, because only in one period in the past 50 years have oil producers received high prices for their oil, that being in the brief period following the World War when crude sold for $6.10 in the Eastern fields and for $3.50 in the Mid-Continent fields.

The same companies that must at times operate so extravagantly in the United States are permitted to practice a different method in foreign fields.

In Foreign Fields

The Royal Dutch-Shell, the Standard companies, the Gulf, the Texas and other companies, which own and are operating foreign concessions under the protection of the governments of those countries produce there as much as their needs require. The Anglo-Persian operates its great Asiatic concession in the same manner. It drills wells when it needs the oil. Doubtless the Turkish Petroleum Co. will develop the Iraq fields in Asia minor the same way. The United States is the only country in which operators are forced by a combination of circumstances to drill regardless of consequences. No sound way to get around this situation, which would have a general application, has yet been devised.

A dozen of oil operators can upset the fine balance between production and consumption.

Four hundred wells while enriching their few owners can at the same time convert 314,000 other wells from paying property into liabilities.

The Tail Wags the Dog

The tail represented by the figure 1 wags the dog represented by the figure 785. In other words every one of those big wells which have caused the bulk of the present overproduction has seriously affected the worth of 785 other wells and has caused over 600 wells to become actual financial burdens on their owners.

It is doubtful if the average oil man realizes the tremendous volume of oil we are producing in this country at this time. He is getting accustomed to production above 2,000,000 bbls., a day. He looks at The Oil and Gas Journal's weekly production graph. "Up 10,000!" he groans, or "Down 10,000!" he smiles, as he scans the black graphic line. But the total of say 2,450,000 bbls., per day—just what does it mean in the petroleum scheme?

Let us go back to one of the most critical periods in the history of the United States, and by comparison we can get a slant on what present-day production really amounts to.

Sea of Oil Was Not Large

It was said that "The Allies rode to victory on a sea of oil." When we look back on the size of that sea we wonder how they did it. We were not producing very much oil in those days.

The United States entered the war 10 years ago this month. In that year, 1917, the production of crude oil in the United States was about 335,000,000 bbls. Oklahoma was the largest producing state in the Union. It averaged 267,601 bbls., per day. Seminole alone is producing 67,000 bbls. a day more than all the fields in Oklahoma in 1917. The former great Cushing Field averaged about 75,000 bbls. a day that year and the once big Healdton Field averaged about 57,000 bbls. They were the banner fields. Notwithstanding the discovery of the Towanda Field in Butler County, Kansas and the speedy development of the El Dorado and Augusta Fields in the same county, Kansas averaged only 104,000 bbls., a day through the year. The North Texas Fields were confined to the districts near

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ODD BITS OF ANCIENT HISTORY OF INTEREST TO OIL INDUSTRY

By George H. Jones

Chairman of the Board, Standard Oil Co. of New Jersey

It is a curious fact that so much misapprehension exists regarding the so-called discovery of oil here in America. Oil was known and prized among the prehistoric peoples of Central America and Mexico and the Mound Builders of this country. In the Old World it goes much further back, for there are records of its uses, for heat and light, by the ancient peoples of Persia, Asia Minor, China and the Caspian regions. The employment of bitumen or asphalt dates back to the first permanent habitations on the banks of the Euphrates River, where this material was used to repair leaks in boats or dug-out canoes, and its value was so well established that it was well known when human beings first began to build in stone. Abraham mentions its use by the ancient Sumerians and the knowledge of its properties passed on to the Babylonians, so that the stones of Nebuchadnezzar's palace were bound together with bitumen—even the pitch used in caulking Noah's Ark was probably the same material from the Dead Sea.

Modern Industry, Ancient Terms

Practically all of our modern petroleum momenclature is of actual Greek and Roman origin. Towns, rivers and districts have been named after petroleum, which indicates its early occurrence There are several Pitchfords in England, doubtless owing their names to the occurrence of petroleum pitch or oil. Brea is the Spanish name for pitch; and La Brea is the name of the ranch near Los Angeles where the skeletons of the extinct animals have been found. It is asserted that 1,000,000 years ago near the present site of that city, there were chimneys or openings formed by the blowouts of gas from the underground petroleum reservoirs. In these chimneys the asphalt flowed to the surface, and in time partly dried as the lighter parts volatilized. Dust swept over this sticky asphalt and water settled in the depressions. This water, during the seasons of drouth, attracted the animals of the region. The pools became effective animal traps, the captured beasts acting as live bait for other mammals and birds of prey, which were in turn themselves trapped. The bones from these pools attracted the attention of scientists in 1906, who found that they were not modern bones, but those that had belonged to animals now extinct.

The explorations that have taken place since laid bare the most astonishing findings of the skeletons and prehistoric animals and birds ever discovered. A recent summary includes 29 species of the greater mammals, 21 species now being extinct. The skeletons of 17 elephants were found in one pool, along with a great quantity of the bones of other animals; this pool was 35 feet deep and 15 by 25 feet dimensions at the top and was too small to contain the huge bodies of these 17 elephants all at one time. This indicates that the traps were active over a long period of time. The skeletons of more than 10,000 birds and more than 5,000 mammals have been found.

When the Dawn Man arrived and visited what is now Los Angeles, he could have used the services of these traps to provision the family. He easily could have made use of the petroleum pitch for a number of things of a very simple nature, as did the early men in other parts of the world.

Used 7,000 Years Ago

In more modern times, some 7,000 years ago, bitumen was used by Egyptians for embalming. The term "mummy" arises from the Persian word for bitumen. Bitumen for this particular purpose was used extensively and for many thousands of years, it was, therefore, a well-established and standardized article of commerce.

Herodotus (484-424 B. C.) indicates the ancient method of manufacture when he refers to a well in Ardwricca, about 40 miles from ancient Susa in Persia, as follows: "From this well they get bitumen, salt and oil, procuring it in a way that I will now describe; they draw with a swipe (a well sweep or the like) and instead of a bucket they make use of the half of a wine skin; with this the man dips and after drawing, pours the liquid into a reservoir, wherefrom it passes into another and there takes three different shapes. The salt and bitumen collect and harden while the oil is drawn off into casks. It is called by the Persians rhadiance, is black and has an unpleasant smell."

Georgius Agricola, in his famous work, De Re Metallica published in 1556, gives a general summary of the ancient method of the manufacture of petroleum and shows how it was prepared in his day.

Air-Gas Lift Hastens Seminole Peak

Increases Early Production of Wells. Crooked Holes Will Make Pumping an Engineering Problem

By J. L. Dwyer

With the attainment of a new peak in the Greater Seminole Field, some attention is being given to the various phases of the pool which comprise its area. The field has been subdivided into four pools located in Townships 8-6, 9-5, 9-6 and 10-6 of Seminole County, Oklahoma, and called Bowlegs, Earlsboro, Seminole and Searight Pools, respectively.

The Seminole, or 9-6, Pool was the first to witness any intensive drilling activity, and is the oldest of the four pools. Its phenomenal performance has entitled it to a place in the records of major pools, and its spectacular production may be traced directly to the adequate development and adoption of the air-gas lift system which has been extensively used. To date, 111 wells in this pool have been flowed by artificial means through the use of the air-gas lift.

The air-gas lift being responsible for such sensational output has aroused a great amount of interest and forecasts as to what length of time it will prove economical in the Seminole Field have varied greatly. When it is considered that the famous Cushing Pool reached a peak production of 310,000 bbls. after 18 months of existence, and that the Seminole Field touched that amount after seven months of drilling, and that it doubled its production in the sixty days which started the year 1927, the efficacy of the air-gas lift system cannot be questioned, and its effect upon future fields must be anticipated as highly accelleratory. Whether or not it will increase the ultimate yield of oil per acre cannot at this time be determined with any degree of satisfaction.

Increased Early Production

The failure of most companies operating in the field to maintain adequate records of the amount of oil produced by means of the air-gas lift has greatly hampered the efforts of all who have attempted to establish any figures upon this method of production, and all figures used in connection with the mention of air-gas lift must be approximations, although they have carefully been checked in various sources. The lift is such a variable factor in producing oil that one day's results cannot be taken as an average for the lease, or even for the individual wells. After a careful examination of the production records of the entire field, it is evident that the present daily oil production made by the air-gas lift is approximately 43 per cent. Past records indicate that since January 1, 1927, the amount of oil produced by the lift has constituted from 40 to 50 per cent of the Greater Seminole output.

Many attempts have been made to predict with a degree of accuracy the duration of the lift of the air-gas system, as it was generally believed that six months constant flowing of a well by this method would render it valueless, since the static head of fluid would be lowered by that time.

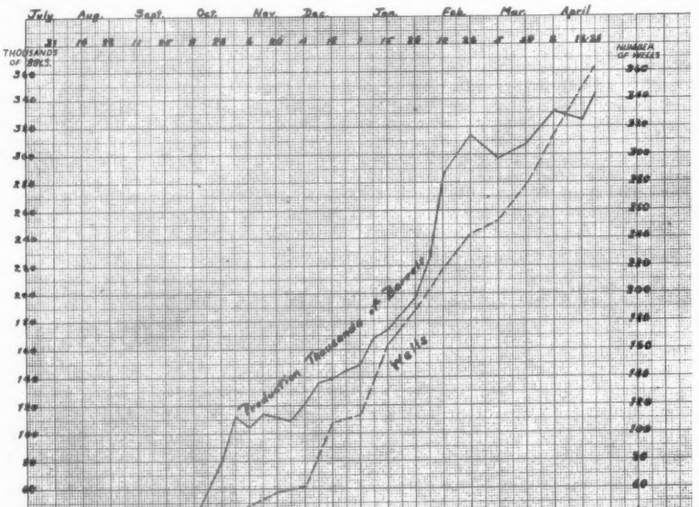
Some leases in Seminole are now having great difficulty in flowing their wells with the air-gas lift, and the owners believe that the effectiveness of the method is a thing of the past, and that future attempts to handle the output of the wells must be made through other agencies. An examination of the records of the wells experiencing this difficulty show that they average about five months, and they are among the oldest wells in the field. This figure is not advanced as being average of the life of the system or as being representative of the general conditions of the air-gas lift, as the problem must vary with structural and sand conditions, but it is interesting to observe that almost all of the wells which have experienced this difficulty are about five months old.

Each Lease Distinct Problem

The petroleum industry never has presented a problem which is more strictly individual than that of flowing wells in the Seminole Field by the air-gas lift. Not only is the production of each lease a separate and distinct problem, but hardly any two wells in the field will respond similarly to the same changes in operation. Almost every company in the field maintains a staff of resident engineers, and each well is equipped with sufficient meters to record the gas input and output volume. This volume is compared with the production of the well, and a ratio established. The conditions are then studied for individual results, and according to engineers who have studied little else for the past four months, no general rule or application of pressure, volume or ratio will govern the production, and the case of each well must be studied and handled separately.

Fluid Column in 9-6 Falling

The lift system has been working heavily upon the static column of oil existing in the Seminole wells for three months. The point of submergence is slowly and surely being lowered, as the column of oil decreases. The tubing in the majority of the wells in Township 9-6 is now almost at the bottom of the hole, and out of the 111 wells flowing by this means, a greatly decreased production is obtained as compared to 30 days ago. The real trouble in the Seminole Field may not yet have been experienced, for should the air-gas become ineffectual, operating difficulties will be numerous.



Graphic story of the production of the Seminole Field since July 31, last year.

In the opinion of the engineers handling the lift at Seminole, the use of this system hastens the entry of the water which naturally is fatal to the life of the pool, and most of the technicians have looked for the intrusion of water ere this. During the past week the 9-6 wells have displayed an increase in the output of water, and it has appeared in wells which previously had been free from this intrusion Former evidences of water were from wells situated on poor parts of the structure, but its encroachment has been rather general during the past week. Two wells hitherto free of water are now making 60 per cent, and the opinions of the engineers are that the water has been hastened by the use of the lift.

Seminole City's Decline

The future production of Earlsboro and Bowlegs is purely guesswork, but now that the Seminole City Pool has showed a steady decline, a few observations may be made. This pool is producing 59 per cent of its oil by air-gas lift. Several wells have found a period of five months the maximum for the profitable use of this system. If this should be representative of conditions in the field, the production now made by the air-gas lift in 9-6 should present a decline of over 50 per cent within 30 days, as about half of the wells will reach a life of five months within that time. The present air-gas production in 9-6 is approximately 115,000 bbls. and under the conditions outlined above this should decrease 57,500 bbls. by June 1.

The average production per well has suffered greatly during the past eight weeks, and only for the completion of wells in Bowlegs and Earlsboro having huge output, the average per well would have been much more reduced. The sharp decline which the Seminole City Pool, or 9-6, has displayed would have reduced the average to a few hundred barrels. For the week ending February 26, the average production per well was 1,281 bbls.; and for the week ending April 23, 944 bbls. These figures speak volumes in themselves.

Problems of Future

Should the use of the air-gas lift in this field be very near the economic limit, the operating troubles of the Seminole operators will present an opportunity for some inventive genius to establish his claim to fame and fortune, for pumping wells in this field has been an absolute failure to date. One major company after exhaustive tests has found it necessary to pull the rods and tubing on wells after 48 hours steady pumping work.

The field was drilled with rotary tools, but it is thought to be the home of more crooked holes than any field in the world. The crooked holes cause an unlimited amount of rod trouble, and may result in the invention and development of special equipment to overcome this difficulty. The rods when run in the hole and pumped, naturally rub against certain spots in the tubing, and before long, either the rod breaks, or the string of tubing is useless and has been worn through by the constant rubbing of the rods.

Conditions in the field have resulted in the demand for better rods and pumping apparatus.

Seminole Wilcox sand is of a soft texture, and much trouble has been experi-

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MAGNOLIA'S PRICE CUTS NOT MET BY OTHER BUYERS UP TO TUESDAY

Up to and including Tuesday of this week no company buying crude oil in Kansas, Oklahoma or North Central Texas had met the Magnolia Petroleum Co.'s lowered price schedule announced on Wednesday April 20. On that day the Magnolia company cut crude oil 10 cents per barrel. It was the second recent cut of the same company and neither of them was met by other purchasers.

The Magnolia, on Tuesday of this week was paying 95 cents per barrel for oil below 33 gravity; 97 cents for 33 gravity, with 2 cents additional added for each degree above 33, making 52 degrees and above $1.35. All other major buyers were paying $1.22 per barrel for oil of 33 gravity with 2 cents added for each degree above 33 and 2 cents deducted for each degree below 33, making their schedules read from $1.12 for 28 gravity to $1.60 for 52 and above.

The average gravity of the oil in the territory covered by the Magnolia's two cuts is 38 degrees. The Magnolia company is paying $1.07 for this representative crude and other companies $1.32, or 25 cents more.

The Magnolia Petroleum Co. is a large producer of oil but its purchases in Oklahoma and in the Texas fields in which it buys on a gravity basis will not, it is said, much exceed 46,000 bbls. a day. It is credited with purchasing 26,675 bbls. in Oklahoma and 16,100 bbls. in North Central Texas and about 3,500 bbls. in the Panhandle Texas fields. It produces more oil than it buys, by a large margin.

The company issued no statement of reasons for its two price reductions. All sorts of reasons were advanced by oil executives and individual producers outside of the Magnolia's organization but their variety made them valueless. By the company's action it was plain enough that it did not want the crude at the current prices and was willing to take a chance on losing a few connections by reducing the price.

The other big companies evinced no desire to further lower crude prices. Had one of them done so there is little doubt that the reductions would have become general, but there was no sign of weakening up to Tuesday.

Restoring Pressure in Petrolia Field

Old North Texas Pool Shows Favorable Reaction to Gas Forced Into Sands by Compressor

By James H. Dameron

WICHITA FALLS, Tex., Apr. 22.—More than a year ago Walter K. Campbell and Albert Crenshaw, both Wichita Falls operators, conceived the idea of applying the method of restoring gas pressure to the sands in producing wells in an old shallow field with the hopes of making a lucrative investment. Within a year those two men had blazed a trail for others to follow and had discovered that the old Petrolia Field which was producing around 100 bbls. a day when they bought the field outright, could be made to produce around 400 bbls. daily. The oil is high gravity crude and comes from the shallow depths of 150 to 720 feet. The Wichita Falls district is literally dotted with small shallow fields as well as boasting of the sensational Burkburnett Field.

Since it became known that the restoration of gas pressure in the Petrolia Field had revived that old area plans are being made to try other fields with the same method. Through the efforts of Wichita Falls district geologists two staff men of the Dallas office of the Bureau of Mines are studying conditions in four shallow pools in Archer County. The purpose of their study is to aid operators of those fields to increase their production. An exhaustive study will be made from old well records and from what information can be obtained by a study of general conditions there.

May Try Burkburnett

Along the same line other operators are considering a greater undertaking and that is the applying of gas pressure to the sand in the Burkburnett Field. On paper the proposed undertaking looks "rosy" and promises to increase oil production and make the returned dry gas inducted into the wells pay for itself when it is stripped of natural gasoline absorbed during its travel through the oil sand.

However, Mr. Campbell and Mr. Crenshaw had a far easier problem to solve in reviving the Petrolia Field than is expected to be found in the effort to revive Burkburnett. Petrolia is peculiarly adaptable for this method of producing which is, in fact, a modernization of the old Marietta process. The field is owned entirely by these operators. It produces from shallow sands and is close to a high pressure gas line of the Lone Star Gas Co. Of the 275 wells 250 were capable of producing and the leases covered approximately 700 acres. All titles were cleared and any desirable acreage was purchased before the experiment was started.

The small field has five producing sands but pressure is being applied only to the two heaviest producing sands. The producing wells are being pumped with the jack type pump and lifting costs are low because of the large number of wells being pumped from one central power station.

The key on intake wells are not on regular locations but when it was decided to use the compressed gas method, key wells were selected for the induction of the gas into the producing sands. One well out of every five or six was selected as a key well. Because the field is old and many of the casing jobs are bad the key wells were recased and recemented. Incidentally, considerable of the gas escapes from the old wells because of leaking casings.

Gas was purchased from the Lone Star Gas Co.'s line and forced into the key wells through regulators at 30 pounds pressure. The pressure was gradually increased until gas was going into the sands under a 70-pound pressure and was showing in a fair volume at the other wells. This took approximately 90 days. While the sands are not thoroughly saturated, the present induction of gas is low and remains normal and approximately 65 per cent of the gas is returned to the main headers and resold to the Lone Star company as casinghead gas with a natural gasoline yield of approximately 1 and 1½ gallons per 1,000 feet.

Production Climbed

Production steadily climbed as the sands became more thoroughly saturated. The highest volume of gas to be forced into the sands during a single day was 2,000,000 feet and of that amount a little more than half was recovered.

About the time operation of the field was reaching its maximum return, if such has been reached, the present slump in prices came about and another economic feature was discovered. Because of the depressing market conditions, the operators used the producing sands for storage rather than pump into tankage. That was accomplished by pumping the wells only three days a week and now they are producing considerably more than they did more than a year ago.

Such results brought about the study of the following pools in Archer County by the Bureau of Mines. The Texhoma-Gose Pool, producing from the 1,600-foot sand and controlled by the Continental Oil Co.; the Harmel Pool, producing from the 1,400 foot sand, and the Ragle Pool, producing from the 1,000-foot sand.

It also caused a new interest to be taken in the Burkburnett Field and if undertaken there on a large scale the results will furnish some interesting facts on the gas restoration method. Burkburnett is another of those fields that can be classed a "terribly" drilled field—wells are close together and many wells were drilled without much regard for the distant future. At present a number of the wells are having the gas pulled with vacuum.

Clifford Mooers of the Shasta Oil Co., Wichita Falls, has studied the restored pressure method with a number of Burkburnett operators who are planning to give the gas repression method a trial this summer. The Shasta company has two gas lines into Burkburnett northwest field and the Clara area. One line is an 8-inch line from near Iowa Park and the other is a 6-inch line from Wichita Falls. Both lines are operated under a 200-pound working pressure. The sands in Burkburnett occur from 180 feet to 1,900 feet and the gravity of the oil from that field ranges from 39 to 41 degrees.

While it is desirable to control the entire field for the application of the restored gas pressure method, operators believe their experiment can be worked successfully regardless of whether the neighboring lease owner will co-operate. It is planned to select a key well in the center of a lease for the induction of the gas and some are considering the advisability of drilling a key well.

Present Plans

Present plans call for the forcing of the gas into the key wells and in the sand desired under a pressure of 50 pounds to the square inch. The gas will come directly from the high pressure lines to the regulator on the key well and the meter measuring the gas will be closely watched to determine the rapidity and volume of gas going into the sand. The induction pressure is to be gradually increased until the desired pressure in the sand is built up.

Each well is to be closely watched and when any one of the wells on the lease starts making gas the pressure in the key well is to be cut down. At this point the wells will be under the closest observation so the pressure of gas going into the key well can be stepped down and regulated to conform with conditions of that particular lease.

Particular care will be exercised to prevent the gas from channeling through the sand. Too much pressure will cause the gas to channel through in a short space of time and for that reason the pressure will be stepped down whenever any one of the wells start making gas. Some of the sands in Burkburnett are tight and consequently more pressure will have to be applied to them while others are loose and will require less pressure.

By regulating the pressure in key wells, operators have hopes of not materially affecting the adjoining lease. With the key wells strategically located, they hope so to regulate the pressure that the gas, with a natural affinity for oil, will denude the sands of globules of oil as it migrates to the point of least resistance. By the time it reaches that point the pressure will have been so regulated that the gas will not push on or spread further but will seek its outlet through the nearest well.

However, operators will not depend upon that alone. An effort will be made to have owners of adjoining leases co-operate in the movement to revive the field.

When the system is started no immediate results will be expected. Operators will be satisfied with a showing for favorable results anywhere from 60 to 90 days. It is figured the gas, when once started through the sand body, will travel at the rate of 10 feet per day. In wells located 300 feet apart 30 days would be required before returns could be expected.

By starting the gas through the producing sand with low pressure the chance of channeling, is eliminated to a great extent. And if cutting down the pressure fails to eliminate the threat it is planned to eliminate the trouble by putting back pressure on the well affected. And by using gas instead of air the possibility of channeling is reduced more.

All of the returned gas goes through connections to the main header. Some of that gas will be utilized in the operation of gas engines for power plants. The remainder of the returned gas is to be sold to the company selling the dry gas and the returned gas will be purchased as casinghead gas. The sale of this gas is expected to offset materially the cost to induct the dry gas used into the sand.

South Archer Test

A few efforts have been made in the past few months to revive old wells in the Wichita Falls district with either air or gas lift. The results obtained in the Petrolia Field are the most outstanding. However, other wells have been made to show a remarkable performance on air lift, one in particular in a field in south Archer County which is being produced with air lift. A few other tests

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LINE FROM PANHANDLE TO PETROLIA IN OPERATION IN THREE WEEKS

By James H. Dameron

DALLAS, Tex., Apr. 23.—Lone Star Gas Co.'s 220-mile 18-inch combination welded and coupled line running from the Texas Panhandle to Petrolia, Tex., in Clay County, is expected to be in operation within two or three weeks. The line will have a capacity of 60,000,000 feet of gas daily under a 400-pound operating pressure. It will serve gas to towns along the right of way of the line and the remainder will go into the Lone Star company's vast system at Petrolia for distribution to other parts.

The line runs up into and through the east part of the Panhandle Field. It extends from Petrolia through Wichita Falls. It follows generally along the right of way of the Fort Worth & Denver right of way as far as Quannah and then north and into the Panhandle Field east of Shamrock and then westerly through Wheeler County.

The pipe is 18 inches outside diameter and has been laid partly welded, the welding of the pipe depending on the topography of the right of way. It was welded in sections of not more than five joints to the section and coupled with rubber joint couplings.

Welding in sections and not solidly was decided upon due to the fact there has existed some doubt as to whether a pipe line as large as 18 inches in diameter can be solidly welded in a manner to give complete satisfaction and freedom from trouble in operating service unless a considerably more costly type of construction were to be adopted than is customarily used in solidly welded pipe lines under present methods of welding construction.

Although the line has three rivers to cross, none of the line will go in the river and instead it is being taken across each river crossing on bridges built by the company. Three such bridges are nearing completion now, one over the Pease River at Vernon, another over Salt Fork east of Wellington and the third over Red River, near Quannah.

Red River's bridge is a combination pipe line and highway bridge being constructed of concrete and steel and built on concrete cylinder piers. The others are being built on creosoted piles with creosoted timbers and caps. The piles were driven with a steam hammer and were jetted into place. All the bridge crossing lines are welded with expansion joints on each end.

Rainy weather delayed completion of the line to some extent, otherwise fast time was made in the construction of it. Ditching proved difficult only in spotted areas and then for no great distance. The line was treated against corrosion with a high grade bituminous pipe paint.

Operation of the line will start with the utilization of the field rock pressure alone to flow the gas. One compressor station is shortly to be erected in Wheeler County and later an intermediate station will probably be erected, approximately near the center of the line. A gasoline absorption plant is being constructed to operate in conjunction with the line and will be located near Hollis.

Heat Transfer Through Insulation

Many Angles to Consider in Proper Application to Moderate and High Temperature Fields of Refining Industry

By L. B. McMillan*
Chief Engineer, Johns-Manville Corp.

In no industry is the economical utilization of heat more essential than it is in the oil industry. A great majority of the refinery processes are based upon the utilization of heat in one way or another. The result is that there are a great many kinds of apparatus, such as stills, towers, tanks, coils, pipe lines, etc., which, if not properly insulated, would waste enormous quantities of heat. From this point of view, the paper abstracted below should prove of considerable interest to executives and engineers connected with the oil industry.

I have attempted to outline the state of existing knowledge on heat transfer through insulation in the moderate and high temperature fields as set forth in the literature, pointing out in what respects this knowledge is insufficient, and what further research is most urgently needed. I have added here and there excerpts from my own experience in the attempt to make the picture more complete.

Briefly, what I have endeavored to do is to prepare a sketch map of the subject in which the principal landmarks are so clearly marked that the user may find his way through the problems involved without becoming lost in a wilderness of detail. Most of you are familiar with the maps appearing in the National Geographic Magazine. They call them "sketch maps." I call them the neatest maps I have ever seen. Hence the reason for setting as my ideal the preparation of a sketch map of this field of heat transfer.

But there are other kinds of maps. Some of them contain a wealth of detail, showing every contour, every small deviation in coast lines and even going almost to the extent of showing every tree. Some of them are so complicated that they are hardly intelligible to any but the man who made them. Such maps have their usefulness, but you would hardly want to use one as a road map to guide you on your way through a strange city. What I wish to emphasize is that we must have sketch maps of heat transfer readily usable by a majority of the engineering profession who have to deal with this subject.

Definitions and Equations

Case I. Simplest Heat Transfer Equation, Flat Surfaces. The resistance to heat transfer is dependent upon the thickness, x, and conductivity, k. It varies directly as the thickness and inversely as the conductivity and is equal to x/k. Therefore, the simplest case of heat transfer through a material having flat surfaces is represented by the equation,

$$U = \frac{t_1 - t_2}{\frac{x}{k}}$$

in which U is the overall rate of heat transfer in B.t.u. per square foot per hour, t_1 is the temperature of the warmer surface and t_2 is the temperature of the cooler surface.

Conductivity

Thermal conductivity is defined as rate of heat transfer in one direction (in a direction perpendicular to an area) per unit area, per unit temperature differential per unit thickness, per unit time (B.t.u. per square foot, per degree temperature difference between surfaces per 1 inch thickness, per hour).

Conductivity is a specific property of a material. It is not dependent on the area, thickness or shape of the material. It is the same for a 0.1 inch thickness of the material as it is for a 10 inch thickness. It is the same for a uniform material whether the material is on a pipe or on a flat surface. It is a rate, not a quantity. The total quantity of heat transmitted is dependent upon the area, shape and length of path (thickness of material), but conductivity is not. Conductivity is dependent upon temperature, but this is also true of other specific properties of material, density for example. This relationship of conductivity and temperature will be discussed in detail later in this paper.

Case II. One Material and One Surface Resistance, Flat Surface. Often the temperature of the cooler surface is not known, the known temperatures being that of the warmer surface, t_1, and that of the air surrounding the cooler surface, t_a. Then the rate of heat transfer is given by the equation

$$U = \frac{t_1 - t_a}{\frac{x}{k} + \frac{1}{c}}$$

in which c is the rate of heat transfer from outer surface to air.

The manner in which rate of heat transfer varies as the thickness of the insulation is increased is illustrated in Figure 1, which is based on the conditions of Case II. It will be noted that the transfer through 2-inch thick material is somewhat greater than half of that through 1-inch thick material. The reason for this is clearly apparent in Equation (2). Doubling the thickness doubles the value of the term x/k, but does not double the value of the term 1/c. Consequently, since the value of the denominator in the case of 2-inch thickness is somewhat less than double the value of 1-inch thick, the value of U for 2-inch thick material much be somewhat more than one-half of its value of 1-inch thick material.

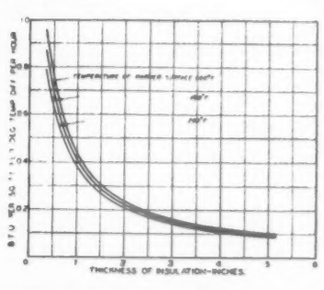

Figure 1: Effect of thickness on rate of heat transfer. Flint surfaces.

Surface Resistance

The term x/k represents the resistance of the material in question and the term 1/c represents the surface resistance. The lack of thorough understanding of the effect of surface resistance is perhaps responsible for more confusion in the literature of heat transfer than any other single item. The failure to separate the effects of surface resistance from those of insulation resistance is the cause of most of the conflicting conceptions of conductivity.

In some cases surface resistance is the controlling factor in total rate of heat transmission. For example, in the case of a one-quarter inch thickness of a metal having a conductivity of 2,500 B.t.u. per square foot, per degree temperature difference between surfaces per 1-inch thickness, per hour, and with a temperature difference of 1 degree Fahrenheit between surfaces, the rate of heat transfer per square foot, per hour would be $\frac{1}{\frac{0.25}{2500}} = 10{,}000$ B.t.u.

If, however, the temperature difference between the warmer surface and still air surrounding the cooler surface is 1 degree Fahrenheit, and the rate of heat transfer from surface to air is 2.0 B.t.u. per square foot per degree temperature difference per hour, the total heat transfer per square foot per hour would be

$$\frac{1}{\frac{0.25}{2500} + \frac{1}{2}} = \frac{1}{0.0001 + 0.5} = 1.9996 \text{ B.t.u.}$$

(or for all practical purposes = 2 0 B.t.u.)

In this case the surface resistance is 99.98 per cent of the total and the resistance of the metal is practically negligible. In such a case a variation of 100 per cent in the conductivity item would have no appreciable effect on the total.

On the other hand, in the case of well-insulated surfaces, surface resistance is a very small part of the total. For example, in the case of a 10-inch thickness of a material having a conductivity 0.25 B.t.u. per square foot, per degree temperature difference per 1-inch thickness, per hour, and with a temperature difference of 1 degree Fahrenheit between surfaces, the rate of heat transfer would be $\frac{1}{\frac{10}{0\ 25}} = 0.025$ B.t.u. per square foot per hour.

If the temperature difference between the warmer surface and still air surrounding the cooler surface is 1 degree Fahrenheit, and the rate of heat transfer from surface to air is 2.0 B.t.u. per square foot per degree temperature difference per hour, the rate of heat transfer would be

$$\frac{1}{\frac{10}{0\ 25} + \frac{1}{2}} = \frac{1}{40 + 0.5} = 0.0247 \text{ B.t.u. per sq. ft. per hour}$$

In this case the surface resistance is only 1.25 per cent of the total.

Surface Resistance

In the first example, neglecting to take account of surface resistance would make the result 5,000 times too large. In the second example, the surface resistance influences the result only to the extent of about 1¼ per cent. These are representative of the two extremes, but actual cases will be found in practice over this entire range and at times even more extreme cases will be encountered.

This illustrates the importance of surface resistance. The matter would be greatly simplified if surface resistance were a relatively constant quantity, but it is not. It is influenced by the temperature of the surface, the temperature of surrounding objects, the nature of the surface, the position of the surface, the velocity of air currents over the surface, and by many other causes. Fortunately for the solution of insulation problems the value of surface resistance is usually small as compared with the insulation resistance—usually less than 25 per cent, and frequently less than 10 per cent of the insulation resistance. Therefore, with even approximate data on surface resistances such problems may be solved with a very satisfactory degree of accuracy.

Case III. One Material, Two Surface Resistances, Flat Surface. When the temperature of neither the inner nor outer surface is known, and the known temperatures are those of the air on either side of the insulation, the equation for heat transfer is

$$U = \frac{t_o - t_a}{\frac{1}{c_1} + \frac{x}{k} + \frac{1}{c_2}}$$

in which t_o is the temperature of the air on the warmer side, c_1 is the rate of heat transfer from air to surface on the warmer side and c_2 is the rate of heat transfer from cooler surface to surrounding air.

The inside surface resistance $1/c_1$, is not used when the temperature of the warmer surface is known. Also, its magnitude is often negligible where effective insulation is placed directly against a heated surface the temperature of which is known. However, it is included in these general equations in order that it be not neglected in cases where it should be taken into account.

Case IV. Two or More Materials, Flat Surface. So far, only one material has been considered. If heat must flow successively through two or more different materials the equation takes the form

$$U = \frac{1_o - t_a}{\frac{1}{c_1} + \frac{X_1}{k_1} + \frac{X_2}{k_2} + \frac{X_3}{k_3} + \ldots + \frac{1}{c_2}}$$

in which X_1, X_2, X_3, ... etc., are the thicknesses of the various materials and k_1, k_2, k_3, etc, are the conductivities of the respective materials.

Inspection of Equations (1) to (4) shows that they are all of the same form. When heat must flow successively through various elements of the construction, in order to write the equation for heat transfer, all that is necessary is to add to the equation an item representing the resistance of each successive element.

The original paper presents equations similar to the above for cylindrical surfaces, but due to lack of space these are not included here. However, they may be referred to in the original paper.

Conductivity

Conductivity has already been defined at the outset of this paper, and was there shown to be a specific property, not dependent upon the area, shape or thickness of the material. It has long been recognized that the conductivities of insulating materials are higher at the higher temperatures. It is reasonable that this should be so; because, due to the porosity of their structure, heat is transferred within these small spaces by radiation, convection and conduction, in addition to that conducted by the solid particles in actual contact, and both radiation and convection increase more rapidly than the first power of the temperature.

It is well known that insulating materials owe their insulating value to the porosity referred to above, and often it is said that the air spaces are responsible for the low conductivity. That is true as far as it goes, but a more complete statement of the situation would be that it is the multitude of surface resistances at the boundaries of the air spaces which give the material its resistance to heat flow. Because of the close proximity of the warmer and cooler walls of these spaces, the magnitude of each of these surface resistances is naturally small as compared with the resistance at an outer

(Continued on Page 160)

*Abstract of paper presented at joint meeting of the American Society of Mechanical Engineers and American Society of Refrigerating Engineers. Abstract was prepared by Mr. McMillan especially for The Oil and Gas Journal and contains the data of special interest to operators of refineries.

[1]Transactions American Electrochemical Society, Vol. 23.

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Published Weekly by
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114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

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Six months - - - - - - - - - $3.00
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IT CAN BE DONE

Since November the reductions in crude oil prices have caused a loss to the oil industry in total market value of its production of approximately $1,350,000 a day, despite the fact that production is over 90,000 barrels a day greater.

On November 15 the total production was 2,348,676 barrels, valued at $4,278,095.

On April 15 the total production was 2,439,226 barrels worth only $2,926,060.

There has been an increase of not quite four per cent in volume of crude oil produced and a reduction in prices of 32 per cent.

The reductions in refined prices have meant a loss in gross revenue of more than $200,000,000 since December 1.

The letter addressed to The Oil and Gas Journal by Mr. E. B. Reeser, president of the Barnsdall Corporation, voices frankly and courageously what every thoughful man in the oil industry has been thinking.

Matters have come to such a condition that some one must speak out so that remedial action may follow.

The canker at the heart of the oil industry is excessive competition, due largely to overproduction.

Twenty-five years ago the steel industry was in the same plight. Its trouble and its remedy were recalled by Judge Gary before the New York meeting of the American Iron and Steel Institute October 22, 1926, in these words:

"Everyone present will remember the days when the steelmakers of this country were engaged in industrial war; when the hand of the steelmaker was raised against his brother; when, practically, in the steel business might made right; when the Golden Rule was subordinated to the supposed pecuniary, if temporary, success of might and strength; when jealousy, discord and brutal antagonism prevailed, and all to the ultimate loss of all who were engaged in the strife.

"And with satisfaction do we recall the awakening which exposed the realization that acquaintances in our lines of business endeavor were in truth possessed of the same sensibilities as ourselves and were willing to try the experiment of treating our competitors as friends and companions. Conferences, open discussion and reasonable bases for maintaining peace and prosperity in business matters have become popular and desirable all over the world."

Except apparently in the oil industry which is learning, as the steel industry did, that "jealousy, discord and brutal antagonism bring ultimate loss to all engaged in the strife."

Overproduction is the greatest evil in the industry yet there has never been a serious attempt to make a move towards its solution.

Why cannot the oil industry have a "Gary dinner" for open discussion of its business problems?

Why not try the experiment, so successful in the steel industry, of treating competitors as friends and companions whose success or adversity is bound up with our own?

You will be told "it can't be done;" that oil men cannot be got together and that if they tried the Government would put them in the penitentiary.

Every step towards progress has been met with "it can't be done" and answered with "it can be done" and the doing of it.

They told Darius Green "it can't be done" and the Wright brothers showed it could.

During the war the Petroleum War Board surmounted all the "insurmountable" difficulties with ease.

But, it will be said, that had the sanction and support of the Government for self-preservation. Well, isn't the Coolidge Oil Board demanding conservation of our oil resources for national self-preservation?

The industry is finding and recovering so much more crude and making so much more gasoline out of it that values are being destroyed.

Settled production, the bulk of our permanent oil supply, is being ruined by competition with temporary flush production.

Mere distributors of gasoline are getting as much as those who refine it and those who find and produce the crude oil obtain together.

The Oil and Gas Journal believes with Mr. Reeser that proper spirit and co-operation would have saved the industry from its present chaotic state and that the fear of government prosecution has restrained the leaders from taking the necessary steps to conserve this wonderful resource.

It believes, however, that this fear should be conquered, must, indeed, be challenged, if the industry is to escape a worse state.

Among all the uncertainties of the oil business there is just one thing sure, that, if the industry does not regulate itself by co-operation, regulation will be forced upon it by the pressure of public opinion and government action.

Everything points that way. It is the one idea that sticks out in the Coolidge oil board report. It was bluntly emphasized by Secretary Hoover in his interview in The Oil and Gas Journal last October when he warned the industry, as the president had done in creating the Oil Board, that it should solve its own problems.

Instead of "it can't be done" let us say "it can be done" and set about doing it.

Let a few brave spirits step out in front and start something. If there is any doubt about a policy accept the invitation of the Department of Justice, offered by W. J. Donovan in his interview given Mr. Kern in The Oil and Gas Journal of February 3, and submit it to the assistant to the Attorney-General in charge of anti-trust matters to see whether it falls afoul of the law.

Mr. Donovan, of course, will not say "you're all right, go ahead," because he cannot tell how far you may go, but if you have not gone over the line he will tell you.

That should be enough for a starter. Business men, he said, have a right to know whether a course they wish to take exceeds the law, rather than testing the statutes by breaking them.

Anyway, some sort of action will be infinitely better than the industry's present helplessness in the face of the most critical condition it has ever been in.

The example of the steel industry shows what can be done. There is no reason to assume that the present administration at Washington will countenance any persecution of the oil industry; rather

(Continued on Page 41)

DRESSER COUPLINGS

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Prospects in North and West Texas

Pecos County Puzzling Feature. Restoring Gas Pressure Experiments Planned in Shackelford County. Production Trend

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Apr. 25.—The effect of recent price slashes on drilling operations in North and West Texas is shown by comparing the figures for this week with those tabulated four weeks ago. A summary of the scout report for the week ending April 23 reveals that only 476 wells are actively drilling in this territory, exclusive of the Panhandle, whereas a month ago there were 698, a loss of 222 in four weeks. Shut down wells have increased from 195 to 291, a jump of 94, and rigs have declined from 119 to 84, a loss of 35. The total of rigs, drilling and shut down operations is 851 this week, a net loss of 161 operations.

All parts of the territory have shared in the general suspension of operations, but the Wichita Falls and Ranger-Eastland districts have felt it much more than the region known as West Texas. There are now 39 rigs, 174 wells drilling and 128 tests shut down in the western part of this territory, a total of 341 operations, compared with a total of 372 four weeks ago when the rigs numbered 63, the drilling wells 241 and the shut downs 68.

Shut-in production is rather hard to find, most of the wells throughout the territory being allowed to produce at their capacity if they have already been completed. The Gulf Production Co.'s No. 1 Hendricks, in Winkler County, which is rated a 2,500-bbl. producer, is still pinched in to about 400 bbls., and the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s four sensational shallow wells on the Yates Ranch in Pecos County are still pinched in, or rather shut in, as they are opened but one hour daily and make their present production shown on the reports in that one hour except for a considerable quantity of oil which leaks through the valves.

Flowing Near Capacity

With the exception of these two pools, however, most of the West Texas wells are flowing at or near capacity, and the same is true of practically all North Texas producers. The Church-Fields Pool and Gulf-McElroy Pool of Crane County have practically no shut-in or pinched-in production now. Fifty-two wells in the Church-Fields area are producing 31,954 bbls. daily, according to this week's average figures, and 16 wells in the Gulf-McElroy Pool are flowing and swabbing about 9,100 bbls. daily. In the combined pool, 9 wells are drilling below 2,000 feet, 8 are drilling at depth less than 2,000 feet, 10 rigs are standing and 10 wells are in various stages of completion with oil in the hole. This makes a total of uncompleted wells in both pools of only 37 operations.

In the Winkler County Pool, two tests are drilling above 2,000 feet, two below that depth and seven rigs are up. These figures do not include wildcats more than a mile from the discovery, of which there are several in the county.

In the Yates Pool of Pecos County, only two extension tests are drilling, and another is shut down for water. A fourth well is drilling half way between the Mid-Kansas Pool and the Texon well, while a fifth test is going down a location from the latter producer, and a sixth machine went in this week between the two areas.

Drilling in Howard County is curtailed also. Only 23 drilling wells, 10 shut down and 2 rigs are listed on the report this week. That makes a total of 35 operations, compared with 36 last month.

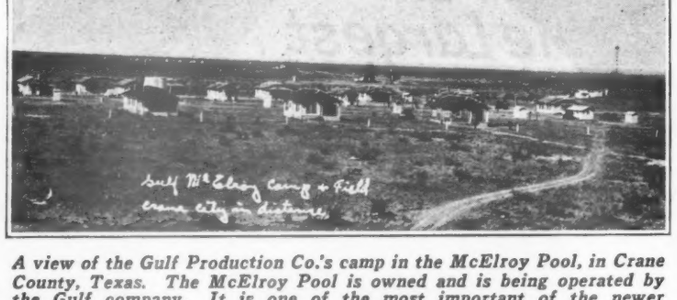
In Upton County, the only area likely to receive stimulus during the next few weeks is the southeast extension of the Burleson area, where the Prairie Oil & Gas Co. brought in a 500-bbl. semi-wildcat this week, No. 1 Lane-C. Three offsets have started, but the acreage is held in large blocks for the most part, some of the companies having entire sections in the trend.

Production Prospects

With the Church-Fields Pool now making 30,000 bbls. approximately from 52 wells, it is improbable that this pool will go much over 50,000 bbls. unless gas-lift methods are employed extensively and meet with more success than is anticipated. The Gulf-McElroy Pool will probably not produce much more per day during the market depression than it is making at present because of unit control, although it is capable of producing several times as much. Pecos County looks like the sensational development of the West Texas region, but it is served by a 6-inch line only and is estimated to have a capacity of only 15,000 bbls. daily with present pumping equipment. It is believed by competent men that the four producers now pinched in could tax the capacity of the line if they were opened up and fully drilled in, so that situation is rather hard to figure out. Reagan County will probably drop off gradually, as every thing in the Big Lake Field is shut down. Howard & Mitchell Counties can be discounted from a market standpoint, also, because their combined production is less than 6,000 bbls., even though the operation of leases in these counties is highly profitable.

North Texas Decline

Production in North Central Texas should begin to show somewhat of a decline soon because new wells in some of the better pools are not being drilled to offset natural declines. This is true in the Blake and Fry Pools of Brown County, where The Texas Company has seven wells shut down on top of the sand and J. K. Hughes has two shut down, and also in the Cook Ranch Pool of Shackelford County where Roeser & Pendleton have 10 tests shut down on the sand. Furthermore, new locations have dropped off considerably, and this will affect production in three or four weeks.



A view of the Gulf Production Co.'s camp in the McElroy Pool, in Crane County, Texas. The McElroy Pool is owned and is being operated by the Gulf company. It is one of the most important of the newer Texas developments.

The first oil was run through the Illinois Pipe Line Co.'s new 6-inch line from McCamey in Upton County to the Yates Pool in Pecos County April 20, most of it coming from four 55,000-bbl. storage tanks. The wells were not opened up any more than usual. The next completion in this district will probably be George A. Henshaw's No. 1 Yates in Section 544, southeast of the pool. It was drilling at 900 feet, according to latest reports.

The Mid-Kansas and Transcontinental Oil Co.'s No. 1 Yates-C in Section 60, nearly half a mile directly east of the pool, encountered no salt, and is apparently running high as nearly as can be ascertained from the log. It is drilling below 860 feet. This is an upset of dope. The surface structure shows considerable east dip and the pool has been figured to trend northwest-southeast. Arkansas Fuel Oil Co.'s No. 1 Holmes is also nearing the pay, drilling at 1,600 feet.

Muenster Pool Tests

Another good well was added to the Muenster Townsite Pool this week when Hedrick-Camp Drilling Co. and Oil Operators Trust Co.'s No. 3 M. J. Kleiss, south offset to Stroube & Stroube's No. 1, swabbed 30 bbls. per hour at 1,633-56 feet. Three new tests have been started in this pool as a result of the excellent completions of the past two weeks, Roxana Petroleum Corp. having built a rig in the northeast corner of its lease offsetting the Hedrick-Camp and Oil Operators Trust's No. 3 Kleiss to the west. This well is now drilling. The Sun Oil Co. also commenced drilling in the southeast corner of its tract north of the Roxana lease, and Stroube & Stroube have a new drilling well between the Sun Oil Co.'s test and the pool.

Stroube & Stroube installed an air compressor on their lease with the intention of putting air lift to their three producers, two of which are in the shallow sand around 1,300 feet, and the other in the new 1,600-foot pay. Oil Operators Trust Co. is opposed to the use of air or gas lift in this field and has protested to the oil and gas supervisor of the State Railroad Commission at Austin. A hearing will be held Tuesday.

Three pipe line companies are recognizing Cooke County's prospects to the extent of looking over the ground with the object of laying a new line into the district to care for the output of six distinct oil pools and one gas field, which is expected soon to join the ranks of oil producers. Humble Pipe Line Co. now has the only line, a 4-inch for 18.5 miles from the Nocona Field of Montague County to the Hooser or Butcher Pool, a 3-inch from that field to the Lynch, Stahl & Burress' Danglemeier wells and a 2-inch from that point to the Muenster townsite. Roxana Petroleum Corp. has bought a site for a loading rack at Muenster, and the Prairie Pipe Line Co., Sinclair and Empire are all considering lines into the county.

Deep Test in Shackelford

A deep test on the Nail ranch in Shackelford County is being started by Sinclair Oil & Gas Co. in Section 48, Block 10, E. T. R. R. Survey. It is located 660 feet west of the southeast corner of Section 48 and is exactly on the line between Sections 47 and 48. Tools were moved in late last week. Contract depth will be 3,500 feet.

The same company is also planning to make a deeper test of its No. 1 Nail in Section 126. All of the 10 tests contracted by Sinclair on this ranch were scheduled originally as 2,000-foot wells in search of the Cook sand, which is so prolific in the Roeser & Pendleton Pool, but these

Late News from the Fields

NEW LOCATIONS IN EAST CENTRAL TEXAS

CORSICANA, Tex., Apr. 25.—The East Central Texas area has been given a new lease of life by the Humble Oil & Refining Co.'s recently-drilled well in Cherokee County, which the company shut in pending the completion of transportation and storage facilities. The Humble company has made location for a test on land of the Reynolds Mortgage Co., Isaac Durst Survey, in Cherokee County, and for No. 1 Spencer, H. C. Sassamon Survey, in Anderson County. In Hunt County, the Amerada Petroleum Corp. was drilling below 1,000 feet in No. 1 Walter Grainer, James Hamilton Survey.

In Navarro County, The Texas Company has abandoned No. 1 C. C. Williams, Ben Roberts Survey, after drilling to 1,710 feet.

OKLAHOMA

The production of the Seminole Field during the past three days has been varied, and on Sunday a new peak of 342,800 bbls. was established. On Monday the field produced 336,000 bbls., and the outstanding event was that four wells in the Bowlegs district stopped flowing and were prepared for the use of the air-gas lift. The Bowlegs district would have registered a decline but for the completion of new wells.

The Bowlegs district was extended three-eighths of a mile to the north by the Mid Continent Petroleum Corp.'s No. 2 Taylor, SE cor. SW SE Section 10-8-6, which is flowing 225 bbls. an hour from the Wilcox sand 3,997-81 feet. The Roxana Petroleum Corp.'s No. 1 Taylor, SE cor. NE Section 16-8-6, is a light well in the Wilcox sand 4,213-20 feet, and swabbed 270 bbls. the first 10 hours.

In the old Wewoka Field the Magnolia Petroleum Co.'s No. 4 Bagwell, NE cor. SW NW Section 32-8-8, a new Hunton lime well, gauged 5,100 bbls. the first 24 hours and 4,987 bbls. the next 24 hours.

TEXAS PANHANDLE

Prairie Oil & Gas Co.'s No. 4 McConnell, Section 67, Block 4, flowed 2,040 bbls. the first 24 hours from lime and granite wash at 3,135-39 and 3,141-45 feet. The well is in the McConnell Pool of Carson County.

GULF COAST

HOUSTON, Tex., Apr. 26.—The Associated Oil Co.'s No. 1 Hirschfield on

(Continued on Page 174)

two are to be carried deeper to test out possibilities in the Strawn series. The well in Section 126 is now underreaming 5-inch at 2,815 feet.

Restoring Gas Pressure

Some interesting experiments on the effect of restoring gas pressure to sands in the North Central Texas area are being tried out by Roeser & Pendleton and Marland Oil Co. in the Cook Ranch Pool of Shackelford County. About 19 wells in this pool have been shut down on top of the sand awaiting more favorable market conditions before completion, so it is with no idea of stimulating immediate recovery that these experiments are being made now. The owners are preparing, instead, to increase their recovery per acre, if possible, and expect to do their experimenting while the price is down, so they will be in a position to take advantage of higher values later on.

Two portable gasoline driven compressors have been installed, and No. A-24 in Section 60 is being used as the intake well. This is in a relatively poor part of the Roeser & Pendleton and Marland joint property. The eight wells surrounding No. A-24-60 were averaging about 6 bbls. daily before the air was put down the key well last week, and on the basis of early reports since the experiment was begun these wells have been increased to an average of approximately 21 bbls. each daily. Raw air is now being used, although residue gas from the company's own gasoline plant on the property will be employed if the system is successful and a permanent compressor plant is constructed.

Gas traps and meters have been installed for every two wells involved in the experiment, and accurate records are being kept, showing the exact amount of production before and after application of pressure, as well as the volume of gas and amount of pressure on each well.

Hurdle Area Extension

An important extension to the Hurdle area of Upton County was effected when Prairie Oil & Gas Co.'s No. 1 Lane-C, NW cor. SW SW Section 3, G. C. & S. F. Survey, was brought in as a good producer this week. Pay was topped at 1,867 feet, and the big pay was reached at 2,010 feet. At total depth of 2,030 feet this well flowed 502 bbls., with no water showing. Dixie Oil Co. has offset it to the west with No. 24 Burleson, Gulf Production Co. to the north with its No. 1 J. F. Lane, and The Texas Company is building a rig to the southeast of it, diagonally across the 40 acres. This is in the northwest corner of another Section 3. The Prairie well extends production about half a mile southeastward.

In the same county, another half-mile extension was made up near the Hughes part of the producing area, when Snowden & McSweeney's No. 1 Hughes in the northwest corner of their tract out of William Teer Survey No. 4, topped the pay at 2,326 feet with surface elevation of 2,679 feet. It was drilled in only 5 feet, at which depth it flowed 287 bbls. the first four hours, and then tubing was run. This calls for offsets by Tidal Oil Co. to the north and White Eagle Oil & Refining Co. to the west. It is probable Gulf Production Co. will also offset it to the northwest, although the location does not make it exactly an offset.

Church-Fields Pool

In the Church-Fields Pool of Crane County, Gulf Production Co.'s No. 6 State-Lasseter, SE cor. SW Section 35, Block 30, on the northeast edge of the pool, topped the pay at 3,035 feet and was drilled to 3,105 feet, where it filled up with 700 feet of sulphur water. It was plugged back to 3,088 feet to shut off the water. The first flow in this well came at 3,065 feet, and its best production was 290 bbls. in 17 hours. It is now swabbing and flowing about 175 bbls. Same company's No. 7 State-Lasseter flowed 557 bbls. at 2,889-3,086 feet; No. 5 started flowing by heads at 3,039 feet and at 3,050 feet flowed 250 bbls.; No. 3 topped the pay at 2,974 feet and was swabbing at 3 079 feet, but no separate gauge was available.

The McElroy Pool was extended over into Upton County by Gulf Production Co.'s No. 1 J. T. McElroy-B, C SW NE Section 187, Block F, which swabs 175 bbls. at total depth of 2,996 feet, and is being put on the pump. Rigs are being built for No. 10 J. T. McElroy, C SW SW Section 199, and for No. 11, 400 feet south and 990 feet east of NW cor. Section 200, and for No. 12, 460 feet south and 330 feet west of NE cor. Section 201. The latter two are offsets to wells along the south edge of the Church-Fields Pool development and may prove that these two pools join together.

In Throckmorton County, Red Bank Oil Co.'s No. 4 Parrott in the NW of the NE of Section 971, T. E. & L. Survey, found lime at 3,909-26 feet, which flowed 100 bbls. the first 24 hours. The hole was then deepened 1 foot and the flow jumped to 100 bbls. an hour and is now going strong at 80 bbls. hourly. This is the third good well in the Masters Pool after many months of disappointment in trying to find a mate to No. 1 Parrott and to Humble Oil & Refining Co.'s No. 2 Stubblefield.

IT CAN BE DONE

(Continued from Page 38)

that it would welcome its being stabilized as the most effective step toward practical conservation of our petroleum resources.

The fear that restriction of output might affect competition overlooks the fact stated by Mr. Reeser that competition is eliminated when the conditions brought about by overproduction force the failure of many small units. In periods of stress the stronger can survive but the little fellows go to the wall.

We can estimate demand from year to year within a calculable fraction. We should find means through co-operation to ascertain definitely just what products we have in stock, how much are being manufactured from week to week, and impress upon the industry the imperative necessity of gauging production in accordance with the facts thus disclosed.

Production beyond that is wasteful because it destroys values.

These facts are obtainable only through co-operation within the industry. The Government itself depends upon the industry for its statistics which are so belated as to be of little value except as records.

Overproduction is our pressing problem. All our other troubles arise from it. There can be no stabilization until it is settled.

The biggest men in the industry should, like Mr. Reeser, come out and discuss it, openly, as Judge Gary did. There can be no question of restraint of trade in such discussion out of which there may come a suggestion that will lead to constructive action.

The Oil and Gas Journal will be glad to publish suggestions for the information and consideration of the industry.

Other industries have solved the problem. Only in the oil industry is it said "it can't be done."

It can be done. Now, when the industry's condition is convincing everyone of the necessity for doing something, is the time to do it.

NORTH CENTRAL TEXAS COMPLETIONS

Archer County

Bridwell & Heydrick's No. 1 Waggoner was a failure at 2,281 feet. L. T. Burns' No. 8 Turbeville-E made 165 bbls. of oil at 1,458-73 feet. Cosden Consolidated Oil Co.'s No. 2 Richardson was a duster at 1,412-13 feet. So was Howard and others' No. 1 Wilson at 1,638 feet. Kell & Kruger's No. 5 Prideaux pumped 7 bbls. at 706-20 feet. Kruger & Staley's No. 1 Turbeville also pumped 153 bbls. at 1,454-80 feet. Lesk Oil Co.'s No. 1 Farmer was dry at 1,503 feet. Marland Oil Co. & Rayzor's No. 1 Wilson was also a failure at 1,855 feet. Petroleum Producers Co.'s No. 4 Turbeville-C had sand at 1,427-69 feet and pumped 72 bbls. Prairie Oil & Gas Co.'s No. 15 Wilson-E was dry and abandoned at 1,415 feet; No. 18 found sand at 1,386-94 feet and made 8 bbls.; No. 19 was a duster at 930 feet; No. 20 had sand at 1,570-76 feet and pumped 10 bbls. Simms Oil Co.'s No. 20 Turbeville-A pumped 65 bbls. of oil at 1,475-1,511 feet. The Texas Company and Trahan's No. 1 Wilson was a duster at 1,751 feet. So was United Producers & Petroleum Production Co.'s No. 2 Turbeville-B at 1,495 feet. Wilson & Russell's No. 8 Prideaux pumped 26 bbls. at 663-77½ feet.

Wichita County

Cannon & Smith's No. 1 Sands made 10 bbls. at 1,831-47 feet, total depth 1,859 feet. Continental Oil Co. and M. Rowe's No. 1 Allen & Kemp was a failure at 1,769-72½ feet. L. P. Hammond's No. 4 Boyd was a duster at 1,815-19 feet. O'Donahoo & Gates' No. 1 "Shallow" Love had sand at 486-97 feet and pumped 62 bbls. Seaboard Oil & Gas Co. and others' No. 1 Boyd was dry at 1,868 feet. So was Sheldon and others' No. 5 Frank and others-A at 274-93 feet. A. T. Wolfe, trustee, No. 1 "Cable" Daume pumped 102 bbls. from sand at 1,811-14 feet.

Wilbarger County

Humble Oil & Refining Co.'s No. 20 Waggoner made 6 bbls. at 2,403-17 feet. The locations of Nos 5 and 14 Waggoner were temporarily abandoned; No. 15 Waggoner had sand at 2,377-89 feet and pumped 2 bbls. A. T. McDannald's No. 1 Waggoner was a duster at 2,504 feet. Murchison Oil Co. and Cranfill's No. 1 Waggoner-C was also a failure at 1,996-2,025 feet. Phillips Petroleum Co.'s No. 6 Waggoner-L pumped 25 bbls. from sand at 2,416 feet. Wichtex Oil Co.'s No. 1 Woodard had no results at 3,053 feet.

Brown County

Corzelius and others' No. 1 Marr was a failure at 1,450 feet. Curry and others' No 5 Newton made 15 bbls. at 1,274-1,286 feet. Forest Oil Co.'s No. 2 Smith found sand at 1,325-34 feet and made 15 bbls. Hughes Developing Co.'s No. 4 Shore was shot with 7½ quarts at 1,309-14 feet and made 900 bbls.; No. 7 was also shot with 7½ quarts at 1,311-16 feet and made 1,000 bbls. Humble Oil & Refining Co.'s No. 4 Fry made 10 bbls. from sand at 1,366-75 feet. McKenna and others' No. 2 Shore made 100 bbls. at 1,312-28 feet; No. 5 had sand at 1,295-1,323 feet and made 900 bbls.; No. 7 found sand at 1,315 37 feet and made 400 bbls Prairie Oil & Gas Co.'s No. 7 E. Westerman made 15 bbls. from sand at 1,241-48 feet. Rex-Pyramid Oil Co.'s No. 13 J. H. Fry made 14 bbls. of oil at 1,284-89 feet. The Texas Company's No. 35 Lowe made 20 bbls. after a 5-quart shot at 1,329-39 feet; No. 40 had sand at 1,295-1,320 feet and made 815 bbls. Valley Oil Co.'s No. 6 Teston found sand at 1,195-1,205 feet and made 90 bbls. after a 20-quart shot Janellen Oil Co.'s No. 2 Davis made 7,000,000 feet of gas at 1,190-1,205 feet. Nelson and others' No. 1 Boysen was a duster at 820 feet. Spratt & Eads' No. 1 Martin was also a failure at 1,403 feet.

Clay County

Lone Star Gas Co.'s No. 14 Miller made 1,000,000 feet of gas at 1,443-73 feet. Bevering and others' No. 4 Broddy made 20 bbls. from sand at 1,282-1,312 feet; No. 5 found sand at 1,285-1,315 feet and made 25 bbls.

Coleman County

The location of Allday Drilling Co.'s No. 1 Kingsberry was abandoned.

Cooke County

Oil Operators Trust Co.'s No. 3 Kleiss made 294 bbls. from sand at 1,625-45 feet. McElreath & Sugrett's No. 1 Fischer was a duster at 2,073 feet.

Montague County

Seigler and others' No. 1 Maddox had sand at 920-35 feet and made 60 bbls. Smith Oil Co.'s No. 7 Maddox found sand at 876-96 feet and made 45 bbls. The Texas Company's No. 1 Dennis pumped 35 bbls. from sand at 855-88 feet.

Shackelford County

Carter Development Co.'s No. 6 Nail was a duster at 2,001 feet. So was Mid-Kansas Oil & Gas Co.'s No. 2 Goodwin at 1,780 feet. Milham Corp.'s No. 2 Sedwick made 12,000,000 feet of gas at 4,068-76 feet; No. 3 made 25 bbls. after a 60-quart shot at 4,250-88 feet, total depth 4,337 feet. Republic Producers Co.'s No. 3 Myer found sand at 1,001-12 feet and made 25 bbls. Roeser & Pendleton's No. 1-46 Reynolds, proved to be a failure at 1,545 feet. Taliaferro's No. 3 Proctor was also dry and abandoned at 2,208 feet.

Throckmorton County

Magnolia Petroleum Co.'s No. 1 Graham was plugged back from 3,211 feet to 3,195-3,200 feet and made 44 bbls.

Young County

Carter and others' No. 1 Richardson

(Continued on Page 170)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ending April 23

ANDREWS COUNTY

Company, Farm and Location—	Remarks—
Calvin & Belt's No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Location.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Location.
Sartain Oil Co. et al's (was Deep Rock Oil Co.'s) No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land	Rigging up.
C. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Material on ground.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur.	Top salt, 1,375 ft.; shut down, 1,530 ft.
Maer & Stanfforth's No. 1 W. B. Taylor, C SE Sec. 15, Blk. A-42, Public School Land Sur.	Top salt, 1,650 ft.; drlg. 2,885 ft.

BORDEN COUNTY

J. L. Kennedy's No. 1 J. S. York SE cor. Sec. 322, Blk. 97, H. & T. C. Sur.	Location.
Stivers et al's No. 1 Snodgrass, C NW Sec. 475, Blk. 97, H & T. C. Sur	S.D. for 8-in., 2,195 ft.

BREWSTER COUNTY

McPhail & Kemper's No. 1 McIntyre	Location.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemons, SW cor. Sec. 78, Blk. M-17, B. S. & F. Sur.	Rig.

(Continued on Page 172)

New Pool Is Opened in Gray County

Travis Well Averaged 50 Bbls. an Hour, 40.2 Gravity, in First Eight Hours. Increase in Panhandle Flush Production

By James H. Dameron
Staff Correspondent, Texas Panhandle Fields

FORT WORTH, Tex., Apr. 25.—Completing a week with few local parallels, the Texas Panhandle was busy throughout the past week with the opening of a new pool in Gray County, a sharp increase in flush production and another slight increase was recorded in the daily average production of the area.

M. M. Travis and associates' No. 1 Back, center Section 44, Block 25, H. & G. N. Survey, eastern Gray County, opened up a new pool in that area when the well barely scratched the pay at 2,845 feet and came in making an estimated flow of 100 bbls. per hour. A slight showing of water was reported and when the well was connected and flowed into tanks it averaged 50 bbls. an hour for the first eight hours. The oil was 40.2 corrected gravity and the temperature was 85. While no samples of the producing formation are available it is believed production is coming from granite wash. Production is coming from 161 feet below sea level.

When an accurate gauge on the well was available its production had dropped to 40 bbls. per hour and the gravity of the oil had dropped to 22 degrees. Samples showed the oil contained 10 per cent water and 2 per cent b.s. Geologists have been skeptical about the area.

No. 1 Back has been a well holding considerable interest for those watching the operations in eastern Gray County. It has showed for both an oil and gas well but shooting failed to make it a commercial producer at a higher level. It is approximately 4 miles southeast of the Nabob Oil Co.'s No. 1 Morse, which is a producer.

The crew was coming out with a measuring line when the well came in shooting a column of oil over the crown block. After making its first head the well settled down to a steady flow. Production was directed into hurriedly constructed earthen storage for a couple of days until storage could be erected. The Humble Pipe Line Co.'s line is 3 miles away. While the well's production is down to half of its estimated initial, it is still flowing strong.

A take-off of the leases around the well shows the Humble Oil & Refining Co. and the Gulf Production Co. holding the close-in acreage to the north; the Magnolia Petroleum Co. to the south; the Humble company, Skelly Oil Co. and Mid-Kansas Oil & Gas Co. to the east; the Amerada Petroleum Corp. and Midwest Exploration Co. to the west and the Magnolia company and Empire Gas & Fuel Co. to the southwest.

Most interesting of the tests drilling in the area now is the Empire company's No. 1 Webb, Section 59, Block 25, drilling dry granite wash at 3,140 feet.

Two Good Producers

East of the big production in Block Y in Hutchinson County and in the area opened by the Alaska Petroleum Co. some time ago, two big producers were completed. Cockrell and McIlroy's No. 1 E. Cockrell, Section 1, Block B-3, was completed in 1 foot of lime topped at 2,850 feet and is flowing 2,520 bbls. daily. McMan Oil Co. completed a big well in the same sand that started off making 114 bbls. an hour and was completed flowing 1,200 bbls. daily. Both wells are in an area that is being developed rather rapidly.

Shamrock Pool.

The Shamrock Pool in Wheeler County was looming into prominence early in the week. Tidal Oil Co.'s No. 2 Bentley, Section 42, Block 24, H. & G. N. Survey, had the pay in sandy lime and granite wash at 2,342 feet and drilled into it to 2,355 feet. The well started off flowing at the rate of 2,000 bbls. daily. It maintained that production for 12 hours and then dropped to 1,500 bbls. for the first 24 hours. There are some cavings in the hole and tools are being run to clean out and agitate. In the same pool Gibson Oil Corp.'s No. 3 Bentley, same section, is flowing 385 bbls. from granite wash at 2,355-58 feet.

Another good late completion was Gulf Production Co.'s No. 3 Noel, Section 198, Block 3, I. & G. N. Survey, Carson County. The bit topped sandy lime at 3,128 feet and penetrated it to 3,147 feet. The well started off making 60 bbls an hour and made 1,330 bbls. the first 24 hours. It is now making better than 900 bbls. daily and the oil is 41 gravity crude.

Minnehoma Oil & Gas Co. and Kistler got an 1,800-bbl. well in the Borger area when No. 3 Johnson, Section 20, Block Y, was shot and its production jumped from 250 bbls. daily. Dixon Creek Oil Co.'s No. 45 Smith, NE NW Section 11, Block Y, created a sensation during the week when it was deepened and shot. It formerly was a 390-bbl. well at 2,793 to 2,880 feet and was deepened to 2,918 feet and shot with 300 quarts. It responded by producing 4,100 bbls. the first 24 hours.

Humble Oil & Refining Co.'s No. 1 Haggard, SW cor. Section 112, Block 3 I. & G. N. Survey, is extending production of the Wilcox Pama Pool in Gray County, to the west. The well had the pay in sandy lime at 3,159-92 feet and is standing with 2,000 feet of oil in the hole. It made 150 bbls. on the swab the second 24 hours. Operations will be shut down until additional storage is built.

Biggest Shallow Gas Well

Another interesting Panhandle completion during the week was Amarillo Oil Co.'s No. 1 Ingerton, Section 41, Block 47, H. & T. C. Survey. The well was completed at 1,190 feet as a 50,000,000-foot gas well and is the biggest shallow gas well in the Panhandle district. Cuttings have led to the belief that the production is coming from the Glorietta sand. Puffs of gas have been found in that sand in wells drilled in Moore and Hartley Counties. The production is coming up through a 12½-inch hole.

Panhandle had a big week in flush production when the 12 new oil wells showed a combined production of 11,405 bbls. or an average of 951 bbls. per well. Cockrell and McIlroy's No. 1 Cockrell and Prairie Oil & Gas Co. and associates' No. 7 Johnson Brothers B were the big wells of the week, each making better than 2,500 bbls.

Hutchinson and Carson Counties each have 15 wells in the early stages of completion. In Hutchinson particularly 15 wells are being cleaned out or their completion is being held back for a shot. A similar number of wells are being cleaned out or being prepared for shots in Carson County. Hutchinson County has 35 wells drilling below 2,700 feet and Carson County has 17 below that depth and drilling. Gray County has seven wells nearing completion and nine drilling around 2,800 feet while Wheeler County has five wells being completed.

While the drilling curtailment program for the Panhandle is not showing results in the production of the field that program will have its effect later on. Some wells close to the producing horizons have been shut down by agreement and the total number of field operations continues to dwindle. However, the number of wells drilling is expected to sustain that area's production for some time and the opening of the new pool in Gray County is not expected to boost production materially. By the time offset wells get down their production will do well to offset the decline of old wells, in the opinion of close followers of the Panhandle Field. Other areas in the Panhandle are expected to keep the field's daily average on a slightly upward trend.

Field Operations

Field operations in the Panhandle for the week closed totaled 451 operations. Twelve new reports were added during the week; 31 locations carried over from the previous week's report, 8 derricks are being built, 10 rigs are standing, 24 are being rigged up, 291 wells are drilling and 72 wells are shut down. The bulk of the work is in Hutchinson County and it is summarized as follows, 4 derricks beings built, 5 derricks up, 15 being rigged, 147 wells drilling, 48 wells shut down and 35 locations in the county.

Daily average production of the Panhandle gained 1,380 bbls. during the week, to offset the losses in North and West Texas for the week and give Texas, exclusive of the Gulf Coast, a net gain. The daily average production of the field was 119,925 bbls. from 1,116 wells or an average of 107.4 bbls. per well. Hutchinson County showed a slight gain and Carson gained 1,465 bbls due to new completions. Gray and Wheeler Counties declined as old wells fell off and with no new production to sustain the production of those two counties.

Three new locations were announced for the Panhandle area late in the week. Shamrock Petroleum Co. has staked location for No. 1 Sam Pakan, 800 feet and 100 feet north of the SW cor. Section 109, Block 23, H. & G. N. Survey. In Carson County two new locations were announced by the Marland Oil Co., No. 3 Garner, 990 feet south and 250 feet west NE cor. E half E half, Section 93, Block 4 and No. 4 Garner, 1,650 feet south and 330 feet west same corner. A derrick is being built for No. 3 and the cellar is being dug for No. 4.

WILDCAT OPERATIONS IN PANHANDLE

ARMSTRONG COUNTY

Company, Well, Farm Name, Section and Block—	Remarks—
United Oil & Trust Co.'s No. 1 J. P. Reck, Sec. 162, Blk. 4, H. & G. N. Sur.	Spudded and temporarily abandoned.

BRISCOE COUNTY

C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW Sec. 22, Blk. B-3, B. S. & F. Sur.	Fishing 1,600 ft.

CARSON COUNTY

Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y.	Temporarily abandoned 1,980 ft.
Champlin Ref. Co.'s No. 2 E. F. Bryan, Sec. 92, Blk. 4	Cleaning out 3,180 ft.
Empire G. & F. Co.'s No. 1 Burnett-B	Drilling 639 ft.
Empire G. & F. Co.'s No. 1 Burnett-C	Drilling 1,690 ft.
Empire G. & F. Co.'s No. 1 C. R. Garner	Set 8-in. casing 2,250 ft.
Empire G. & F. Co.'s No. 2 M. P. Co. fee-A, NE cor. SW Sec. 91, Blk. 4	Top lime 2,278 ft.; top pay in lime and granite wash 3,030 ft. to 3,138 ft., spraying 80 bbls. a day; running liner.
Empire G. & F. Co.'s No. 3 M. P. Co. fee-A, SE cor. SW Sec. 91, Blk. 4	Drilling 2,286 ft.
Gulf Prod. Co.'s No. 1 Noel, SE cor. SW Sec. 198, Blk. 3	Top pay 3,162 ft.; show of oil 3,240 feet, sandy lime, increased to 2 bbls. per hour at 3,229-40 ft.
J. K. Hughes Developing Co.'s No. 2 F. E. Percival, NW cor. E half NW Sec. 199, Blk. 3	Drilling 1,270 ft.
Marland Oil Co.'s No. 1 Burnett-J. C NE NE Sec. 121, Blk. 3	Drilling 2,840 ft.
Marland Oil Co.'s No. 2 C. R. Garner, Sec. 198, Blk. 3	Drilling 2,690 ft.
Marland Oil Co.'s No. 1 J. L. Noel	Setting 8-in. casing 3,060 ft.
McMan O. & G. Co.'s No. 2 F. E. Percival, NW cor. W half NE Sect. 199, Blk. 3	Total depth 3,180 ft.; topped pay in lime and granite wash at 3,170 ft.; swabbed 600 bbls. first 24 hours; to drill deeper.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y	Shut down 2,000 ft.
Republic Prod. Co.'s No. 1 Burnett, Sec. 116, Blk. 4	Topped pay lime 3,109 ft.; 600 ft. oil in hole; drilling 3,170 ft.
Roxana Pet. Corp.'s No. 1 Brown, Sec. 106, Blk. 4	Run 6-in. 2,985 ft.
Skelly Oil Co.'s No. 2 H. Schafer, NW cor. NE Sec. 87, Blk. 4	Set 8-in. casing 2,904 ft.
Skelly Oil Co.'s No. 3 H. Schafer, NW cor. NE Sec. 86, Blk. 4	Set 8-in. casing 2,980 ft.
Skelly Oil Co.'s No. 4 Schafer, NW cor. Sec. 86, Blk. 4	Set 8-in. casing 2,990 ft.
Stubblefield et al's No. 1 E. Cooper, SW cor. NE Sec. 5, B.S. & F. I. & G. N. Sur.	Rigged up and shut down.
Vitek Oil Co.'s No. 1 J. H. Eller, NE cor. NW Sec. 200, Blk. 3	Rig up and shut down.
Vitek Oil Co.'s No. 1 C. R. Garner, SW cor. Sec. 113, Blk. 4, I. & G. N. Sur.	Drilling 460 ft.
White Deer Oil Co.'s No. 2 Jordan-Brown, Sec. 104, Blk. 4	Lime 3,118-35 ft.; initial production 75 bbls., 4 per cent water to shoot.

CHILDRESS COUNTY

Brookins et al's No. 1 Mrs. Givens, 600 feet N and W of SE cor. Sec. 676, W. & M. W. Sur	Spudded and shut down.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Fishing 1,300 ft.

(Continued on Page 99)

PANHANDLE COMPLETIONS

Carson County

McMan Oil & Gas Co.'s No. 1 F. E. Percival, NE W half NE, Section 199, Block 3, swabbed 450 bbls. the first 24 hours from lime and granite wash at 3,160-3,229 feet. Prairie Oil & Gas Co.'s No. 3 J. W. McConnell "A," Section 67, Block 4, swabbed 100 bbls. from lime and granite wash at 3,100-80 feet. Prairie company's No. 2 J. W. McConnell, on the same lease was a far better well. It topped the pay in lime and granite wash at 3,115 feet and penetrated it 20 feet, flowing 1,320 bbls. the first 24 hours. The Texas Company's No. 1, on the T. L. Noel, Section 187, Block 3, was completed in granite wash at 3,273 feet and is making 225 bbls. daily.

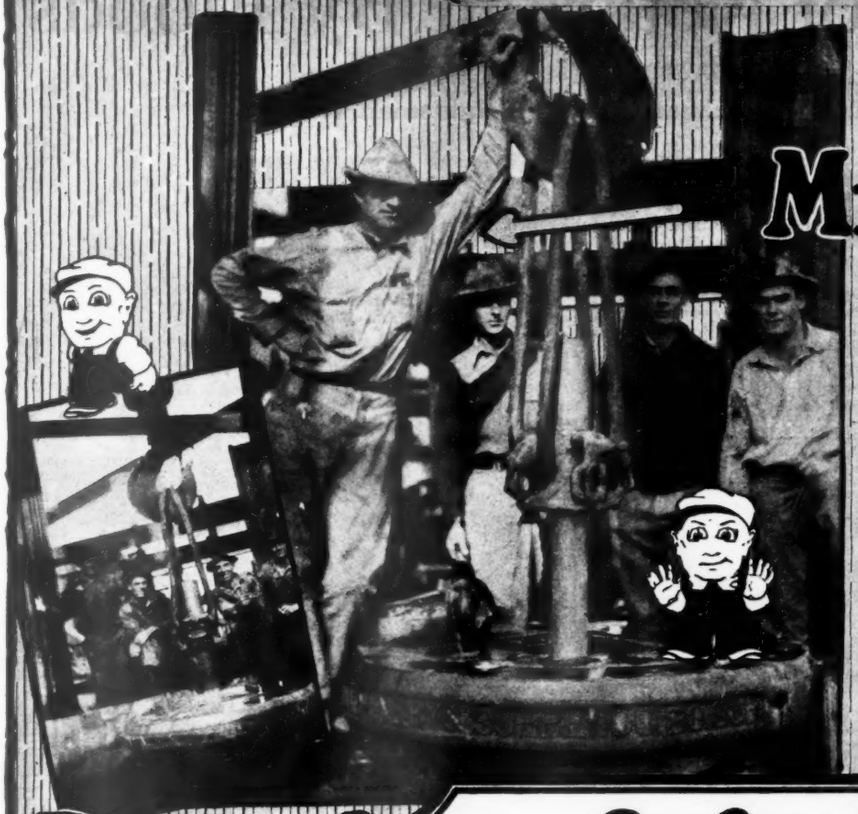
Hutchinson County

Amarillo Oil Co.'s No. 1 Ida Ingerton, Section 41, Block 47, was completed as a shallow gas well. It is making 50,000,000 feet of gas from 1,190-95 feet. Phillips Petroleum Co.'s No. 10 J. J. Perkins (Martin), Section 1, Block X02, topped the pay in lime at 2,930 feet and was drilled to 2,994 feet. The formation at 2,881-2,974 feet was shot with 230 quarts and the well responded with

(Continued on Page 169)

(DUNN TOOLAGRAM)

OIL WELL DUNN TOOLS TRADE MARK REG.

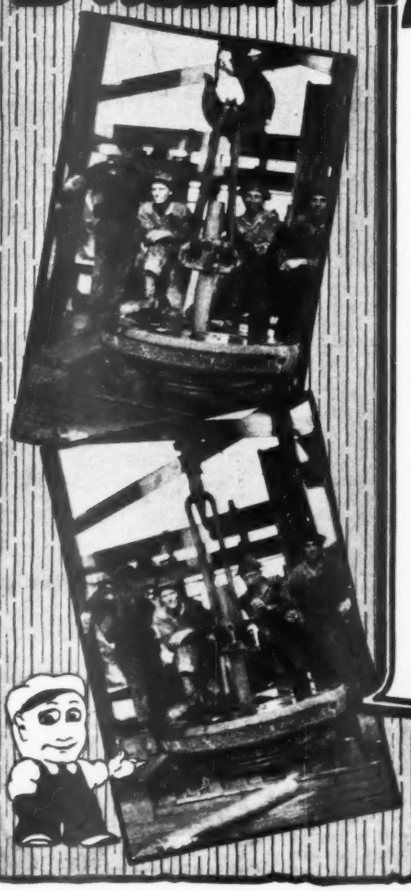


Mr. O. C. "Cotton" Russell

superintendent McDaniel Drilling Co. in the Spindletop Field

says about

Dunn Super-Safety Elevators



"When it comes to elevators for speed and safety, Dunn has them all whipped to death, no foolin'--"

The illustrations show Russell and one of his crews on the Yount Lee Oil Co.'s Fee No. 22, in the Spindletop field, drilling at 4,000 feet. According to reports from our field men, - - - "the men on the job are loud in their praise of this elevator, and say that it has all others backed off the boards." If you're in doubt about it, we will ship any size desired for trial, under any conditions, without obligation, transportation charges to be paid by us.

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Bowlegs Pool Retarded By Floods

Pool Expected to Do 150,000 Barrels a Day Within 60 Days. Extending Pipe Lines to New Wrightsman Well

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

The extension of the Bowlegs Pool, in Seminole County, a quarter mile to the south; the completion of another good well in Earlsboro, the announcement of two pipe line projects in the Seminole district and the report that a third is to be built were the chief bits of news gathered from the reports of motor boats cruising the Seminole waters last week.

The floods have been felt in the Bowlegs sector of Seminole and have hampered the progress of the Amerada Petroleum Corp. putting all of its wells on the Rasco lease on the air-lift system. This part of the Seminole Field is steadily increasing in area and production with the completion of additional wells, and average 59,000 bbls. last week with fifteen wells very close to the top of the sand. There is little doubt that Bowlegs will attain a peak production of about 150,000 bbls. within the next 60 days, and further developments after that time may surpass this figure.

In the Earlsboro region, the Philmack Oil Co. and the Marland Oil Co. have a good well in No. 2 Darault, NE cor. SE Section 8-9-5. This is an offset to Crosbie and others' well, which revived the interest in Earlsboro. The new well had the Wilcox sand 4,316-20 feet, and started flowing 255 bbls. an hour. It has demonstrated that the new high found by the Crosbie well is not a freak, and while the performance of the Earlsboro region is expected to be erratic, its output should touch 40,000 bbls. daily at least.

Extending Pipe Lines

The Independent Oil & Gas Co. owns the direct west offset to the Crosbie well with the Darby Petroleum Co. In anticipation of a good production, the Independent is to extend its pipe line system 5 miles from the present terminal in the Seminole area to Earlsboro. The line is a 4-inch line, which should take care of the output of this lease in addition to normal pipe line movement of crude.

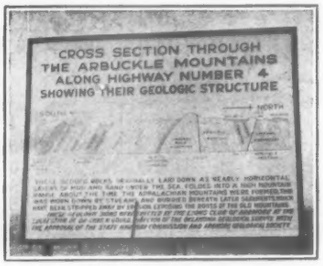
Another pipe line project under consideration at this time is the line which the Champlin Refining Co. is reported to be starting from the Garber Field to Seminole. This company has its own refining and marketing facilities at Enid, Okla., and distributes petroleum products in western Ok'ahoma and adjacent territories. While it has not been confirmed, the line is reported on good authority to be a 6-inch size, and will require about 115 miles of construction from the present Champlin station in the Garber Field to Seminole.

There has ben a noticeable change in the situation at Seminole during the past week. The most significant development has been the intrusion of an increased amount of water which appeared in wells of good yield. The previous water situation at Seminole has been limited, and has been confined to wells of small yield. In showing an increase in wells of larger output, the water is appearing about 60 days later than those who have closely studied the production of the field expected. The action of the air-gas lift system has hastened the water, and Seminole now has produced much more oil than was ever expected last summer when the discovery well was drilled in.

Storing Seminole Oil

The producers of the region are storing a good amount of crude, and evidently are reluctant to part with their oil at current prices. About 290,000 bbls. daily is being shipped out of the field by pipe line and tank car movement, and the balance is going into steel storage which at this time is rather plentiful. An eased situation is apparent from both the oil producers and the purchasers' viewpoint, and the period of distress seems to have passed. Future congestion may appear in Earlsboro and at Bowlegs, but in the 9-6 area there is a steady movement of crude.

In Pottawatomie County, the recent find of the Pierce Petroleum Co. and



The road marker pictured above illustrates a novel method of presenting geological conditions to the public. It gives the detailed formations of the country traversed by a road through the Arbuckle Mountains of Oklahoma, and was erected by the Lions Club of Ardmore, Okla., and the Ardmore Geological Society and the Oklahoma State Geologist, Dr. Charles N. Gould.

others is claiming some attention, and the Prairie Pipe Line Co. will extend a branch of its system from a point near Tribbey eastward 10 miles to the well which is located in Section 30-7-4. The line, a 6-inch, will afford additional outlet for the production of the well which is rated at 800 bbls. and which is now pinched in on account of inadequate transportation facilities. The well is a Hunton lime well, and very likely opens a new field in Pottawatomie County.

Northwest of the old Wewoka Field, the Magnolia Petroleum Co. also has a new Hunton lime well which offers additional possibilities. It is No. 4 Bagwell, NE cor. SW NW, Section 32-8-8, which flowed 500 bbls. an hour the first two hours from lime 3,935-75 feet. The well was pinched in after two hours, and is now flowing 270 bbls. an hour. It will be opened wide when the pipe lines have been connected which should be in a day or so.

The Greater Seminole Field made the following average production, by companies and leases, for the week ending April 22:

Bowlegs Pool

Company and Lease—	Wells	Prod.
Amerada:		
Rascoe	6	8,560
Carter:		
Bowlegs	1	4,515
Walker	1	4,105
Wise	2	3,900
Empire:		
Lacey	1	4,024
Gypsy:		
Walker	2	5,282
Indian Terr. Illum. Oil Co.:		
Davis	3	9,000
Goforth	2	5,128
Livingston	2	5,857
Walker	2	3,778
Atlantic O. P. Co.:		
Jones	2	155
Taylor	1	Off
Sinclair Oil & Gas Co.:		
Adams	1	Off
Bowlegs	1	Off
Harjo	2	5,580
Total	28	59,886

Earlsboro Pool

Amerada:		
Anderson	3	11,245
Crosbie et al:		
Bryant	1	6,480
Gypsy:		
Bora	1	Off
Earl	1	Off
*State land	3	12,750

*Half Amerada.

Magnolia:		
Holmsley	1	6,262
Mid-Cont. Pet. Corp.:		
McCumber	1	7,216
Phillips Pet.:		
Graham	1	1,616
Prairie Oil & Gas:		
Baker	1	365
Sinclair Oil et al:		
Foreman	1	Off
Shallow production	29	4,300
Total	43	44,235

Seminole Pool

Amerada:		
Fixico	4	3,557
Killingsworth	4	1,776
Rentie	4	2,800
Atlantic Oil Prod.:		
N. Cudjo	3	3,285
R. Cudjo	2	89
Barnsdall Oil Co.:		
Carter	9	5,791
Jones	2	6,712
Carter Oil Co.:		
B. Carter	2	215
J. Carter	4	180
F. Carter	4	975
R. Cudjo	3	5,690
W. Cudjo	1	1,525
Gilliland	1	1,785
Grisso	7	5,766
Knappenberger	2	2,586
M. Killingsworth	7	18,567
G. Killingsworth	3	3,570
Lukes	3	4,305
Simpson	1	Off
Strothers	2	8,810
Vierson	4	2,875
Empire Gas & Fuel:		
Wilson	2	4,633
Gypsy:		
Butler	3	2,019
Carter	8	2,539
Fixico	5	232
Harjo	2	1,380
Wolf	5	4,444
Independent-Garland:		
T. Fixico	8	2,080
Independent-Interocean:		
Jones	4	1,050
Independent Oil & Gas:		
P. Fixico	3	370
Indian Terr. Illum. Oil Co.:		
Bowlegs	9	5,116
Goodin	4	726
Harjo	4	1,256
James	5	1,188
Reed	3	32
Kingwood-Roxana:		
Johnson	5	3,604
Magnolia:		
Franks	3	2,556
Mid-Cont. Pet. Corp.:		
Rentie	8	2,855
Tayeche	7	1,477
Mid-Kansas Oil & Gas Co.:		
Pressley	1	801
Johnson	1	1,205
Philmack-McCulloch:		
Butler	1	Off
Phillips Pet.:		
Strothers	1	250
Prairie Oil & Gas:		
Gross	5	310
Spencer	1	25
Strothers	5	8,091
Pure Oil Co.:		
Strothers	17	14,157
Strothers B	1	493
Roxana Pet. Corp.:		
Harber	1	257
Lashley	2	636
Sinclair Oil & Gas:		
Carter	2	35
Cudjo A	6	1,620
Cudjo B	3	3,030
Fixico*	3	4,733

*Half Transcontinental.

T. B. Slick:		
Cudjo	2	4,060
Franks	7	5,778
Giblet	1	Off
Superior Oil Co.:		
Cudjo	4	5,931
The Texas Company:		
Mayhue	1	Off
Tidal-Osage Oil Co.:		
Carter	5	3,130
Fixico	7	5,255
Harjo	6	730
Mahardy	4	523
Tayeche	2	4,140
Turman Oil Co:		
Cudjo	4	5,709
Grisso	1	1,605
Jones	3	7,781
Total	258	197,633

Searight Pool

Carter Oil Co.:		
Davis	5	10,285
Frazier	2	3,085
Kiker	1	26
Scott	1	65
Stewart	2	205
Gypsy Oil Co.:		
Cudjo	1	1,130
Mid-Continent Petroleum:		
Grayson	3	7,765
Prairie Oil & Gas:		
Cannon	1	40
Carter	1	40

EFFORT TO DEVELOP GAS FIELD ON WEST SIDE OF ARTESIA FIELD

By Special Correspondent

ARTESIA, N. Mex., Apr. 23.—An effort will be made to develop a gas field on the west side of the Artesia Field, as this should be highly profitable. The drilling into a gas sand by Grimm & Clark on the No. 1 Daugherty in Section 3-17-27, at a depth of 950 feet, estimated good for 1,000,000 feet, has convinced local operators that gas in commercial quantities can be obtained just east of the Pecos River. The Grimm & Clark test is approximately 7½ miles due east of Artesia. Another well to have a good flow was the Decum Development Co.'s No. 1 Braden well which, however, has been capped for the past six months.

South of the Artesia Field, the Ohio Oil Co.'s No. 1 Workman test, being drilled on acreage blocked by the Marland Oil Co., in Section 13-22-28, is drilling at 3,100 feet with the Delaware Mountain sandstone looked for in the next 100 feet. Over 2,500 feet of this formation was drilled through in the Ohio company's No. 1 Tracy permit but it failed to carry any oil. The Delaware mountain outcrops in the Guadalupe Mountains to a thickness of 1,400 feet. Under the right structural conditions, it is the opinion of many geologists that large production will be obtained from the Delaware Mountain sandstone in this area.

The Ohio company's Workman drilled out of the salt at 2,895 feet, the elevation on this well being 3,060 feet. The Marland Oil Co.'s No. 1 Hale in Section 11-20-30 is drilling below 1,725 feet, the bottom of the salt in this test being 1,550 feet with an elevation of 3,235 feet.

Work of The Texas Company

The Texas Company is the most active of the majors in this section. Its No. 1 Rhodes permit well in Section 22-26-37 close to the Texas line is drilling at 650 feet. The No. 1 Robinson permit well in Section 25-16-31 is drilling at 700 feet. Rigging up is under way on its Jackson permit No. 1 in Section 4-20-34 and a road is under construction to No. 1 Lockhart, permit well in Section 5-22-38. This company's No. 1 Dunken Dome test is drilling past a lost bailer at 3,370 feet.

The Ohio Oil Co. is plugging its No. 1 William Mitchell in Section 18-17-31, having encountered more salt water, below 4,200 feet. The Skelly Oil Co. has resumed drilling its No. 1 Lynch in Section 22-17-31, having exhausted the water which apparently seeped in while the well was capped.

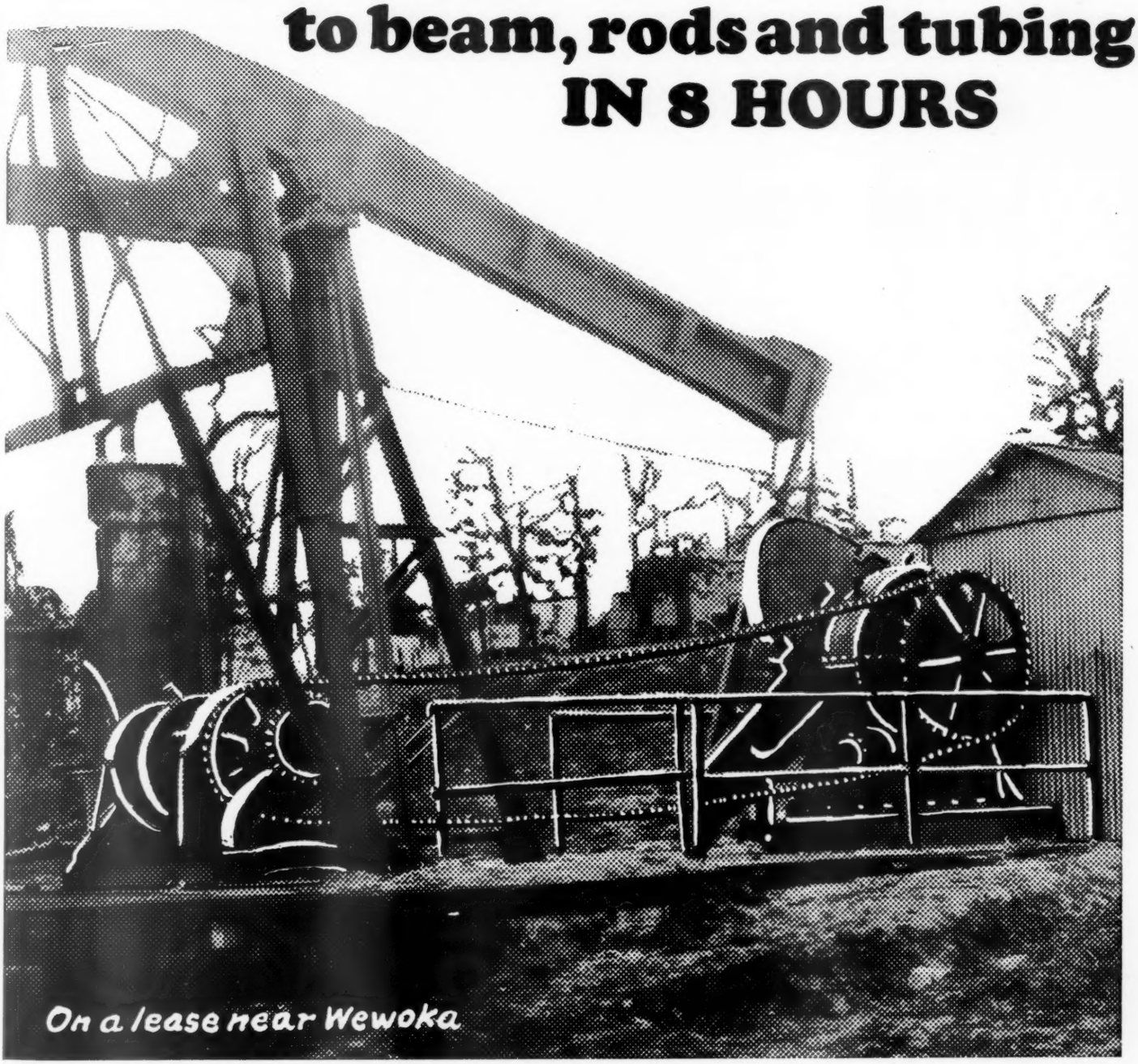
In the Maljamar Field, Henderson, Dexter & Blair Inc.'s No. 1 Wyatt well in Section 34-17-33, picked up 6 feet of gray sandy lime, topped at 4,760 feet, carrying 1,000,000 feet of gas. The bottom of the hole is slightly below 4,800 feet.

North of the Maljamar company's producers the Cap Rock Oil & Gas Corp.'s No. 1 Leonard & Levers well in Section 11-16-32 is drilling below 2,500 feet having passed out of the salt at 2,215 feet.

(Continued on Page 143)

LUFKIN

pulls 4300′ well, beam to beam, rods and tubing IN 8 HOURS



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Houck	1	20
Kinkade	7	8,910
Pure Oil Co.:		
Aldridge	1	1,080
Searight et al:		
Youngblood	2	Off
Sinclair Oil & Gas:		
Polly	1	255
Twin State Oil Co.:		
Jennings	1	1,470
Total	30	34,370
Grand total	359	336,120

Pottawatomie County

Mid-Continent Petroleum Co. has the rig on the ground for No. 4 McKinley, NE cor. NW SW, Section 9-9-5, Pottawatomie County, in the Earlsboro Pool. The rigs are on the ground for No. 5 Doyle, NE cor. SW SW, and No. 6 Doyle, NW cor. SE SW, Section 19-7-4. Location for No. 7 Doyle, NE cor. SE SW, was made and the rig is up for No. 8 Doyle, SE cor. SW, Section 19-7-4. Pure Oil Co. is building the rig for No. 3 Doyle, NW cor. SW NW, Section 30-7-4. Wrightsman and others moved out the rig for No. 2 Davis, NE cor. NW, Section 30-7-4. Magnolia Petroleum Co. made location for No. 1 Hembree, NW cor. SE, Section 19-7-5. The Prairie Oil & Gas Co. located No. 2 Bledsoe, SE cor. N half NE, Section 25-7-3.

Mid-Continent Petroleum Co.'s No. 1 McKinley, SE cor. NE SW, Section 9-9-5 in the Earlsboro Pool was completed for 1,330 bbls. from the Wilcox sand 4,358-64 feet. Gypsy Oil Co. has abandoned its No. 2 Bora, SE cor. NW SE, Section 16-9-5, the depth being 2,644 feet. No. 1 Earl, NE cor. NW, Section 16-9-5, has also been abandoned at 4,321 feet in the Wilcox sand. No. 1 Strain, NE cor. Section 17-9-5, has been abandoned in the Wilcox sand 4,319-29 feet. Roxana Petroleum Corp.'s No 1 Strain, SE cor. NE, Section 17-9-5, found water in the Wilcox sand also and was abandoned at 4,450 feet.

Seminole County

Philmack Oil Co. made location for No. 1 Sango, SE cor. NE NW, Section 1-9-5, Seminole County, in the Earlsboro area. Magnolia Petroleum Co. has the rig up for No. 2 Holmsley, NW cor. NE SE, Section 11-9-5, and the rig is being built for No. 3 Holmsley, NW cor. SE SE, of the same section. Continental Oil Co. has erected the rig for No. 1 Hollins, SE cor. NW, Section 12-9-5. Magnolia Petroleum Co. made location for No. 1 Dixon, SW cor. SE SW, and location for No. 2 Dixon, SE cor. SW, Section 12-9-5. Location for No. 3 Seay has been made NE cor. NW SW, Section 12-9-5. Twin State Oil Co. has moved the rig out for No. 1 Barker, SW cor. NW NE, Section 12-9-5. Gypsy Oil Co. has the rig on the ground for No. 1 Harjo, NE cor. SW, Section 24-9-5. The rig is being built for No. 1 Stidham, SE cor. NE SW, Section 24-9-5. Sinclair Oil & Gas Co. made location for No. 1 Milley, NW cor. SE, Section 24-9-5. Carter Oil Co. is putting up the rig for No. 1 Micco, NW cor., Section 8-8-6 in the Bowlegs Pool. Indian Territory Illuminating Oil Co. has dug the cellar for No. 3 Fay, SE cor. NW SW, Section 13-8-6. Carter Oil Co. made location for No. 5 Harjoche, SW cor. NW NW, Section 14-8-6. Pure Oil Co. has the rig on the ground for No. 1 Strothers "D," SW cor. NE NW, Section 14-8-6. The rig is also on the ground for No. 1 Strothers "E," SE cor. SW NE, Section 16-8-6. Indian Territory Illuminating Oil Co. is building the rig for No. 4 Wilmouth, SE cor. NE NE, Section 15-8-6. Gypsy Oil Co. made location for No. 1 Bowlegs, NE cor. NW SE, Section 22-8-6. Midland Oil Co. is building the rig for No. 1 Wise, NW cor. SE NW, Section 23-8-6. The Prairie Oil & Gas Co. made location for No. 3 Charlie Davis, NW cor. NW NW, Section 13-9-5.

Searight Operations

F. J. Searight and others' No. 3 Epperson, SE cor. SW NE, Section 33-10-6 in the Searight Pool has been abandoned at 4,422 feet. Magnolia Petroleum Co.'s No. 3 Lena, SW cor. SE, Section 10-9-5 Earlsboro Pool swabbed 150 bbls. the first 24 hours from the Earlsboro sand 3,500-18 feet. No. 1 Seay, SE cor. SW SW, Section 12-9-5 has been completed in the Earlsboro sand for 60 bbls., sand record 3,417-32 feet. Barnsdall Oil Co.'s No. 2 Smith, NE cor., Section 15-9-5 is making 5 bbls. after being shot with 10 and 20 quarts in the Earlsboro sand at 3,472-3,515 feet. Pure Oil Co.'s No. 1 Aldridge, NW cor. SE NW, Section 3-9-6 had an initial production of 2,510 bbls. from the Hunton lime 4,050-4,109 feet. Carter Oil Co.'s No. 6 Davis, SW cor. NE NE, Section 4-9-6 Seminole Pool, had the Wilcox sand 4,334-55 feet, was shot with 20 quarts and made 1,175 bbls. the first 24 hours. No. 3 Vierson, SW cor. NW SW, Section 23-9-6 was shot with 40 quarts and made 1,990 bbls. from the Wilcox sand 4,311-58 feet. Pure Oil Co.'s No. 1 Strothers "B," NW cor. Section 36-9-6 topped the Wilcox sand at 4,180 feet, drilled to 4,185 feet and when put on the air it made 480 bbls. Tidal Oil Co. and others' No. 1 Sally, SE cor. NW NE, Section 9-8-6 Bowlegs Pool is a dry hole in the Wilcox sand at 4,444 feet. Indian Territory Illuminating Oil Co.'s No. 2 Davis, NW cor. SW SW, Section 13-8-6 flowed 7,908 bbls. the first 24 hours from the Wilcox sand 4,226-29 feet. No. 3 Walker, NW cor. SE SE, Section 15-8-6 made 3,642 bbls. the first 24 hour gauge from the Wilcox sand 4,038-60 feet. Magnolia Petroleum Co.'s No. 3 Coppage, NW cor. SW SE, Section 22-7-7 after getting rigged up has been abandoned.

Stephens County

Margay Oil Corp.'s No. 5 Lane, SE cor. SW NW SW, Section 7-1s-8w, Stephens County, is drilling at 1,735 feet. W. H. Smith's No. 1 Paddycoart, NE cor. NW NE, Section 24-1s-4w is drilling at 160 feet. F. W. Merrick made location for No. 3 Underwood, SW cor. NE SE, Section 13-1s-4w. No. 2 Underwood, NW cor. NE SE, Section 13-1s-4w is rigging up rotary. Wirt Franklin's No. 3 Apple-Franklin, SE cor. NE, Section 24-1s-4w is rigging up rotary tools. Hammond & Haddock's No. 1 Ball, CWL SW NW, Section 1-1-9w, is drilling at 800 feet.

Creek County

J. B. Grieves' No. 3 Bartlett, NE cor., Section 13-19-8, Creek County, is drilling at 700 feet. H. C. Wilson has the rig on the ground for No. 1 Durant, NW cor. NE, Section 10-15-8. Roxana Petroleum Corp. has built the rig for No. 2 G. Smith, NW cor. NE SE, Section 18-19-9. McLean and others' No. 1-A Land, NE cor. SE SE, Section 2-18-11 is spudding. C. G. Tibbens' No. 1 Grayson, SE cor., Section 5-18-12 is spudding. Carter Oil Co. has moved out the rig for No. 1 Criswell, SW cor. SE SW, Section 1-17-10. Elson and others have the rig on the ground for No. 1 Wilcox, NE cor. NW NW, Section 12-17-10. Thompson & Black and others' moved out the rig for No. 2 Turner, SE cor. NW, Section 12-17-10. Elson and others have the rig on the ground for No. 3 Turner, NW cor. NE NW, Section 12-17-10. Cumberland Petroleum Co.'s No. 5 Tiger, CEL NE SE, Section 13-17-10 is spudding in. J. H. Wright has the rig up for No. 18 Tahkaney, NE cor. SW NW, Section 24-17-10. Skelly Oil Co. made location for No. 4 Yellowhead, NW cor. NE SW, Section 32-17-10. C. G. Tibbens has a machine on the ground for No. 1 Marshall, SW cor SE SW, Section 33-15-9.

Savoy Oil Co.'s No. 1 Oakhurst townsite, Lot 25, Block 2, Section 5-18-12 in the Oakhurst Pool is producing 150 bbls. from the Turkey Mountain sand 2,200-202 feet. No. 1, Lot 24, Block 38, Section 5-18-12 is good for 75 bbls. from the Turkey Mountain sand 2,207-16 feet. Commercial Drilling Co.'s No. 1, Lot 8, Block 15, was completed for 145 bbls. in the Turkey Mountain sand 2,245-47 feet.

Margay Oil Corp.'s No. 1 Wilcox SE cor. SW SW, Section 1-17-10 is producing 518 bbls. from the Dutcher sand 2,525-30 feet. Transcontinental Oil Co.'s No. 1 Charcotentanna, NW cor. NE SE, Section 9-17-10 is dry and abandoned at 3,235 feet in the Wilcox sand. Carter Oil Co.'s No. 2 Harris, SW cor. NE, Section 12-17-10 topped the Dutcher sand at 2,420 feet, drilled to 2,424 feet and made 170 bbls. E. P. Harwell's No. 1 Harris, NW cor. SE, Section 12-17-10 got a hole full of water in the Wilcox sand 2,855-91 feet and is abandoned. Misener and others' No. 11 Black, NE cor. SE, Section 17-17-11 is a dry hole in the Wilcox sand 2,698-3,035 feet.

Curtis Oil Co. and others' No. 1 Eprill, NW cor. NE, Section 26-16-10 is a dry hole in the Wilcox sand 3,045-3,119 feet. Atlantic Producing Co.'s No. 5 Bear, NW cor. NE NW, Section 16-14-10 is making 35 bbls. from the Wilcox sand 3,225-41 feet. T. B. Slick's No. 5 Jones, SE cor. NE SW, Section 32-14-10 came in for 175 bbls. in the Wilcox sand 3,364-86 feet. Magnolia Petroleum Co.'s No. 2 Fulkerson, NW cor. SE SW, Section 32-18-7 has been completed for 14 bbls. in the Peru sand 2,250-65 feet. Murray Oil Co.'s No. 4 Farres, NE cor. SW SE, Section 36-17-8 had an initial production of 120 bbls. from sand 2,755-77 feet.

Garfield County

Amerada Petroleum Corp.'s No. 1 Wilcox, SW cor. NE, Section 19-23-3w, Garfield County, is drilling at 1,700 feet.

Sinclair Oil & Gas Co.'s No. 15 Kisner (East), SW cor. NW NE, Section 19-22-3w in the Garber Pool has been abandoned at 3,773 feet. No. 11 W. Windler, C SW SW, Section 30-22-3w Garber Pool drilled to 5,010 feet and the hole was lost on account of a bad fishing job. The well was then plugged back to 4,400 feet and after a shot, was abandoned. Frank Frantz's No. 1 Montgomery, NE cor. SW, Section 2-21-7w has been abandoned at 3,400 feet. Penders Petroleum Co.'s No. 2 Cain, SE cor. NE SE SE, Section 5-21-3w is dry and abandoned at 3,808 feet having encountered no oil sands. No. 1 Bowers, NW cor., Section 9-21-3w is also dry and abandoned, the total depth being 2,300 feet.

Kay County

Wentz Oil Co. has moved in a Star machine to drill for shallow gas in No. 1-G Andrews, NW cor. NE, Section 8-28-1w, Kay County. Comar Oil Co. is building the rig for No. 1 Scott, SW cor. NW NE, Section 20-28-1w. Harris & Hahn's No. 1 Brown, SW cor., Section 9-27-1w in the Blackwell district is being cleaned out preparatory to deepening 10 feet from the old total depth of 3,458 feet. Mathews and others made location for No. 1 Buesing, NW cor. Section 8-27-1e. Blackwell Oil & Gas Co. has moved in a machine to drill for the shallow gas in No. 1 Denton, C SW SE, Section 31-27-1e. Wentz Oil Co. has moved in a machine to drill No. G-1 Harris, C SE NW, Section 31-27-2e to the shallow gas.

Hazel Atlas Glass Co.'s No. 3 Buessing, CNL S half N half NE, Section 20-27-1e was completed for 500,000 feet of gas in sand 857-65 feet. Anderson, Peterson and Smith's No. 1 Ferguson, NE cor. SW, Section 31-27-2 is flowing 57 bbls. from sand 2,465-83 feet.

Lincoln County

Magnolia Petroleum Co. has a rig on the ground for No. 1 School land No. 38, NW cor. SE, Section 36-16-5, Lincoln County.

Wilcox Oil & Gas Co.'s No. 1 Newkirk, NE cor. NW SW, Section 35-14-6 was completed for 75 bbls. on the swab for sand 4,167-78 feet.

Major County

The Texas Producing Co.'s No. 1 Cheyenne Basin, SW cor., Section 36-22-14w, Major County, is abandoned at 200 feet.

Okfuskee County

Riverland Oil Co. has a rig on the ground to deepen No. 1 Barnett, SW cor. SE SW, Section 19-11-11, Okfuskee

(Continued on Page 154)

KANSAS OUTPUT UP 2,000 BARRELS; BIG WELL IN CHURCHILL POOL

By J. L. Dwyer

Staff Correspondent, Kansas Fields

With the production of almost every pool in the State showing an increase, the Kansas output was increased almost 2,000 bbls. last week. The most prominent news was another big well in the Churchill Pool of Sumner County, and a lime well in the Leon district of Butler County.

The Roxana Petroleum Corp.'s No. 7 Churchill, C S half SE SW, Section 25-31-2, swabbed 490 bbls. the first 12 hours, and is expected to be flowed by air as soon as the necessary equipment can be installed. This well brings the production of the Roxana corporation to 15,000 bbls. daily in this pool.

In the Leon district of Butler County, H. H. Patton and others have a lime well in No. 1 Stearns, SE cor. NE NE, Section 33-27-6, which has 1,800 feet of oil in the hole from lime formation found at 3,086-89 feet. The well is rated at 225 bbls. daily. Two offsets to the well are now drilling, and should be completed within 10 days, and will afford an idea of the possibilities of this area.

Butler County

Rogers and others have the rig up for No. 17 Drum Bitler, SW cor. SE NE, Section 20-26-8, Butler County. Skelly Oil Co. made location for No. 1 Beedles, SE cor. NE SW, Section 4-27-6. Blue Stem Oil Co. has built the rig for No. 4 McLean, NW cor. SE SW, Section 5-27-6. Derby Oil Co.'s No. 1 King, NW cor. SE NE, Section 2-28-4, is drilling at 200 feet.

White Eagle Oil & Refining Co.'s No. 1 Jahren, NW cor. NE SE, Section 29-25-8, is dry at 3,080 feet. Phillips Petroleum Co.'s No. 1 Nicols, SE cor. SW NE, Section 33-26-6, is a dry hole at 3,228 feet. Johnson and others' No. 2 Beedles, NE cor. SE SW, Section 4-27-6, was completed for 250 bbls. in sand at 3,134-43 feet. Phillips Petroleum Co.'s No. 2 Tatum, NE cor. NW, Section 9-27-6, had sand at 3,170-79 feet, was plugged back to 2,795 feet and completed for 100 bbls.

Chase County

White Eagle Oil & Refining Co. is rigging up No. 1 Lipps, C NE NE, Section 31-18-7, Chase County. Kewanee Oil & Gas Co. made location for No. 1 Lipps, C SW NE, Section 32-18-7.

Kewanee Oil & Gas Co.'s No. 1 Lipps, C NE NW, Section 36-18-6, was completed for 4,250,000 feet of gas in sand at 1,228-40 feet. Empire Gas & Fuel Co.'s No. 1 Anderson, C NE SW, Section 4-18-7, is dry and abandoned at 1,645 feet.

Chautauqua County

Griffith & Strueblin and others' No. 1 Jeaneret, SW cor. SE SE, Section 11-32-10, Chautauqua County, has been abandoned at 35 feet.

Cowley County

Independent Oil & Gas Co. made location for No. 2 State, NE cor. NW, Section 15-32-4, Cowley County, in the State Pool. T. B. Slick made location for No. 5 Dibbons, SW cor. NW NE, Section 22-32-4. Pyle & Sutter made location for No. 1 Leslourgon, C NE SE, Section 16-35-4.

Dickinson County

Dewey and others' No. 1 Elianon, SW cor. NE, Section 7-16-1e, Dickinson County, has been abandoned at 3,018 feet.

Elk County

Abel, Byington and others' No. 1 Ayers, NW cor NE, Section 34-31-11, is drilling at 640 feet.

Allison & Fitzwilliams' No. 1 Porter, NW cor. NE, Section 13-29-8, had sand at 1,997-2,099 feet, total depth 2,032 feet, and after a shot of 95 quarts made 110 bbls. Pure Oil Co.'s No. 17 Chaffine, NW cor. SW SE, Section 14-31-10, was completed for 40 bbls. in sand at 1,638-50 feet.

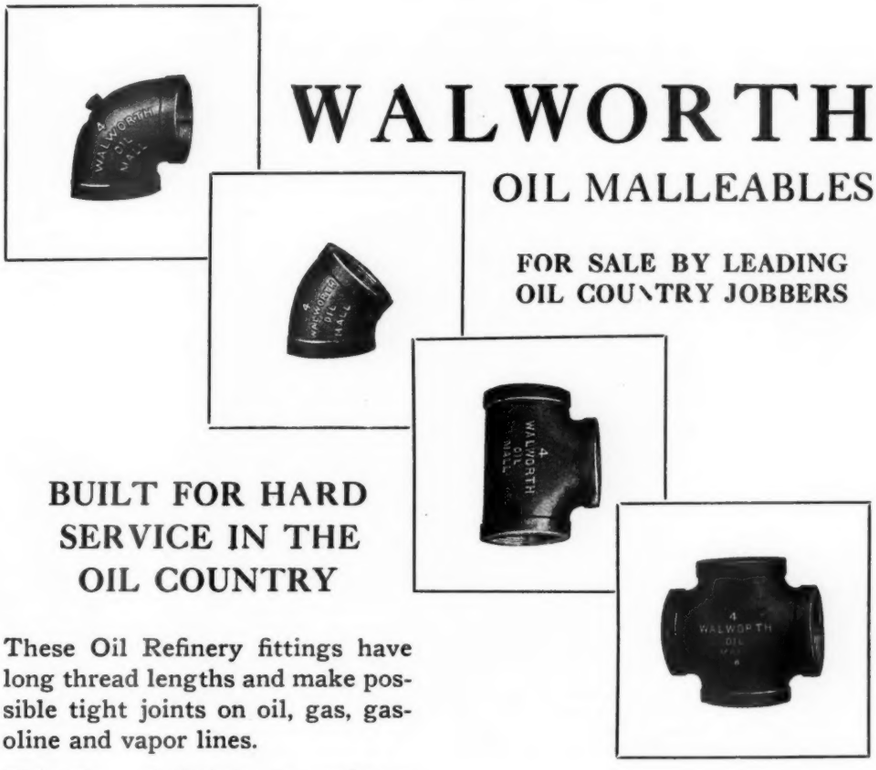
Ellis County

Day and others have the rig up for No. 1 Robbins, SW cor. NE NE, Section 14-14-16w, Ellis County.

Greenwood County

Empire Gas & Fuel Co. made location for No. 13 Duby, NE cor. SE SW, Section 14-22-11, Greenwood County. Jennings and others' No. 2 Kipfer, SE cor.

(Continued on Page 153)



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Drop in North Louisiana-Arkansas

Hit by Floods and Storms. Smackover Almost Entirely Under Water. Derricks Wrecked in Bull Bayou Field

By Neil Williams
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 25.—Floods and storms in Arkansas and north Louisiana oil fields the past week played havoc with operations and are forcing an almost general shutdown, not only of drilling but also of producing wells. Several fields, chief among which is Smackover, are almost entirely under water while traffic and communication to many others are cut off. In the Bull Bayou Field of Red River Parish a gale leveled between 40 and 50 derricks and the loss in the entire district is amounting to thousands of dollars.

This already has been reflected in a loss of 9,520 bbls. in daily average production for the past week but as most of the shutdown in the field has been forced since these figures were compiled production for this coming week will suffer a much greater and more radical drop than during the past week. This decrease has meant a decline of 16,310 bbls. in daily average production within the past two weeks.

With only two exceptions, DeSoto and Red River Pools of north Louisiana which showed a slight gain, and Stephens, Ark, in which there was no change, all fields of this district declined in production during the week. Production by fields was:

North Louisiana	
Caddo light	10,180
Caddo heavy	3,340
Homer	5,200
Haynesville	7,800
DeSoto and Red River	4,420
Elm Grove	570
Bellevue	1,575
Cotton Valley	6,000
Urania	10,780
Total	49,865
Arkansas	
El Dorado	6,090
Lisbon	4,290
Smackover light	10,990
Smackover heavy	84,225
Stephens	1,410
Nevada	1,380
Bradley	100
Total	108,485
Total both states	158,350
Total last week	167,870
Loss	9,520

The shutting down of operations and the sharp drop in production naturally is overshadowing interest in general field work, which on the whole has been comparatively inactive for some time due to market conditions. But in reality there were very few developments of decisive importance in any part of the north Louisiana-Arkansas district.

Fourth Sand in Norphlet

Stewart and associates' completion during the week of No. 8 Murphy, Section 9-16-15, Norphlet area of Smackover, is considered as one of the most important finds in recent months due to the possibilities it opens in the new fourth sand level of that field. This well, which was brought in flowing approximately 2,500 bbls. of clean 30 to 32 gravity oil, now is flowing better than 1,000 bbls., along with 10,000,000 feet of gas from sand at 2,788 feet.

The three developed higher sands, those generally picked up around 2,200, 2,400 and 2,600 feet, have been heavy producers of heavy oil, practically all of which is below 24 gravity. Now, the finding of large flush production of a much lighter crude in a fourth sand is expected to stimulate a campaign of deepening of old wells and new drilling that may bring Smackover back into the spot light.

This is not the first producer from this level but others have been smaller, a few gassers and some dry. However, the Stewart well bears out the contention of the majority of operators that the fourth sand of Norphlet, still comparatively unscratched, is to be extremely productive. Near the Stewart well in the same section, the Ohio Oil Co. during the week started to drill deeper an old well, its No. 6 Murphy which is at 2,692 feet. Several other wells in the vicinity already are well past the 2,700-foot level and are expected in the pay found by the Stewart well in the near future.

Pleasant Hill Area

Production in the new wildcat Pleasant Hill Pool of northern Sabine Parish, Louisiana, still is confined to wells of the Arkansas Fuel Oil Corp. with the bringing in of Beckman & Freeman's No. 1 Logan, Section 28-10-12, as a gasser with only a light spray of oil. This well tested 2,000,000 feet of gas in sand at 3,206-23 feet but since then it has been deepened to 3,270 feet and the liner has been reset preparatory for another test.

This well is to the north of the Arkansas Fuel Oil Corp.'s Nos. 1, 3 and 4 Logan in Section 33, and No. 5 Logan in Section 28, which opened the field and so far bears out the contention that oil production of the district will be toward the west and southwest. The Arkansas wells got their production at depths ranging from 3,190 to 3,265 feet.

The southwest trend of the pool also will be determined within the next few days by Moffett and associates' No. 1 Moore, Section 5-9-12, which is drilling ahead at 3,118 feet nearing the pay depth found in the Arkansas wells. Also west of the Arkansas wells, the Louisiana Oil & Refining Corp. will make a test and already has the derrick up for No. 1 Logan, Section 28-10-12.

Carterville Field

The Carterville wildcat area of northern Bossier Parish, which until last week was looked upon as the location of this district's next oil field, is playing second fiddle now to the Pleasant Hill district. Now it seems almost certain that the Carterville Field is to make only gas. The Louisiana Oil Refining Corp.'s No. 1 Blanton, Section 23-23-12, which first looked like a 500 to 1,000-bbl producer, is making only gas and salt water. For several days it has been blowing wild out of control, the liner having been thrown from the hole breaking connections with the flow lines. This well is estimated to be making 28,000,000 feet of gas.

Lawson-Urbana District

The Lawson-Urbana wildcat district of Union County, Arkansas, produced another sensation Friday in the form of a gas well estimated from 60,000,000 to 85,000,000 feet. This well, J. W. Olvey's No. 1 Simmons, Section 15-18-13, is larger than the Marine Oil Co.'s No. 1 Thompson in the same district but a mile northwest which was completed several weeks ago. It is in sand at 2,673-82 feet. The well has been closed in successfully.

This district also has been looked upon as another wildcat oil field but the Olvey well as well as other previous recent developments have indicated a field of large gas producers only. Another well in this district, the Marine Oil Co.'s No. 1-B Winn Estate, Section 10-18-13, was abandoned as dry at 3,002 feet during the week. The same property, however, has another test, in the same section, No. 2-A Thompson, which will be tested in the near future. The Simms Oil Co. also has cored what seems to be a good gas sand at 2,637-40 feet in No. 1 Crawford, Section 14.

The preceding wells represent the high lights of the weeks' operations, a summary of which showed 27 wells completed, 15 wells waiting on standard rigs, 10 wells temporarily abandoned, 183 drilling, 15 rigs, 37 derricks and 4 locations. Detailed operations were:

NORTH LOUISIANA

Bossier Parish

In the Bellevue Pool of Boosier Parish, Humble Oil & Refining Co.'s No. 30 Bliss and Wetherbee, Section 15-19-11, tested a small showing of oil at 1,344 feet but is drilling deeper at 1,592 feet. The Texas Company's No. 14 Capps, Section 24-16-12, Elm Grove district, the only other drilling well in proven fields of Bossier Parish, still is shut down waiting a standard rig with the total depth at 1,551 feet.

Caddo Parish

Six wells were completed in Caddo Parish of which five were oil producers and one a gasser. Standard Oil Co.'s Nos. 180 and 181 Stiles, Section 33-21-16, are pumping 50 bbls. each, the former at 1,812-34 feet and the latter at 1,840 feet. Victor Wenzell's No. 4 Hunsicker, Section 15-20-15, is pumping 100 bbls. daily from 2,218 feet; Gulf Refining Co.'s No. 267 Ferry Lake, Section 28-20-16, 52 bbls. at 2,248 feet, and Ohio Oil Co.'s No. 3 Murray, Section 28-21-15, 10 bbls. at 1,608 feet. Standard Oil Co.'s No. 1 Trosper, Section 34-18-16, Waskom Pool, gauges 10,000,000 feet of dry gas with rock pressure of 1,000 pounds. It is in sand at 2,714-20 feet.

In the latter district, Bahan and Bahan's No. 2 Wilburn, Section 4-17-16, tested salt water at 963 feet. Owl Oil Co.'s No. 1 Bell, Section 5, is drilling out a 12½-inch plug at 100 feet. In Section 12-19-16, Askew and associates have a derrick up for No. 1 Elliott.

L. A. Berston's No. 6 Murff, Section 12-21-16, is to be standardized at 1,080 feet, at which depth it is shut down waiting on the rig. W. D. Chews' No. 5 fee, Section 33, is drilling out a 6-inch plug at 1,810 feet. In the same section, Standard Oil Co. has completed a derrick for No. 184 Stiles. This is the second new test which this company is to start, the derrick for No. 183 Stiles already having been erected.

Bussa & McGoldrick in Section 26-21-15, are drilling out a 6-inch plug cemented at 1,400 feet. Dixie Oil Co. is rigging up with cable tools its No. A-2 Noel, Section 13. This is in the Trinity horizon at 3,720 feet. In the same section, Dixie Oil Co.'s No. 81 Robertshaw is being plugged back from 3,775 feet to make a gas well. In Section 14, No. 86 Robertshaw is shut down waiting a standard rig at 1,736 feet. The same company's No. 10 Slattery, Section 27, is being reamed to the bottom with the depth now at 3,875 feet. Gulf Refining Co.'s No. 13 Tyson, Section 14, is in rock at 390 feet, this test just having been started the previous week. In this same section, Haynes Brothers are rigging up for No. 1 Murray. Magnolia Petroleum Co.'s No. 16 Dillon, Section 24, has a fishing job at 1,750 feet. The No. 20 Dillon in Section 23 is shut down waiting on a standard rig at 1,620 feet. Also in this section is Magnolia's No. 20 Robertshaw, which is being drilled in a limey shale at 3,588 feet. Ohio Oil Co., in Section 12, is rigging up for No. 25 Smith. Shreveport Oil Corp.'s No. 2 State, Section 27, is shut down because of high water with total depth 1,250 feet. The Texas Company's No.

MAKE SMALL PRODUCER OF TEST IN M'KINLEY COUNTY, NEW MEXICO

By Special Correspondent

FARMINGTON, N. Mex., Apr. 23.—A late report from the Seven Lakes area of McKinley County is that the Childress Drilling Co. has made a small producer in its No. 1 test in Section 19-18-10, having picked up a sand carrying considerable oil at 325 feet. A good showing of gas was encoutnered at 280 feet in this well and it is the intention to drill several additional holes, the initial well being put down in three weeks.

The Midwest Refining Co. is drilling in the Mesa Verde formation in its No. 1 in Section 1-17-9, at 1,725 feet. The well will be carried to the Dakota sands.

In the San Juan Basin, drilling is being carried ahead, regardless of the low price of crude. In the Bloomfield district, the Mid-Continent Oil Co.'s No. 1 in Section 22-29-11, is drilling close to 900 feet having picked up five sands. The last was encountered at 805 feet and was estimated good for about 5 bbls.

The Union Oil & Mining Co. has completed the erection of a steel rig over its Blanco well in Section 8-29-9, and will make another attempt to clean the hole of several strings of lost tools.

On Red Mesa

The Miley Oil Co., operating on the Red Mesa structure in Section 32-33-12, is attempting to sidetrack a string of lost tools. The Ohio Oil Co. on the same structure has let a contract for the deepening of its No. 1 Snyder well in Section 11-33-12 an additional 500 feet. Drilling was suspended on this test in February at a depth of 3,600 feet.

An analysis made by the Ashland Refining Co. of Ashland, Ky., on crude from the Union Oil & Mining Co.'s well was reported on as follows: "The sample of crude oil received showed a gravity of 48.8 corrected to 60 temperature. Distillation shows that it contains practically no light gravity gasoline, although it showed 84 per cent naphtha and when blended with casinghead or volatile gasoline, the naphtha would go into Navy specification gasoline. Of the residue of 16 per cent, 9.5 per cent was excellent kerosene, leaving a residue of 7.5 per cent, which contained a large percentage of wax and probably some lubricating oil. The gravity of the naphtha 84 per cent was 51.4 per cent. The kerosene 41.7 gravity."

Drilling Report

Farmington—San Juan District

Mid-Continent Oil Co.'s No. 1 Hare, NE NW Section 22-29-11, drilling at around 900 feet; Mansfield No. 1 Emery permit, SW SW, Section 24-30-9, shut down at 504 feet, erecting standard rig; Senate Oil Co.'s No. 1 Garland, Section 34-29-11, running 4¾-inch casing at 1,736 feet; Southwest Development Co.'s No. 1 Atteberry, Section 24-31-11, drilling at 1,290 feet; Ross, Bloomfield Royalty Co.'s No. 1 Viles, SE Section 11-29-11, shut down temporarily at 2,630 feet; Portage Oil & Gas Syndicate's No. 2 Davis, NE SE, Section 24-30-13, down

(Continued on Page 143)

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47 Caddo M. L. Co., Section 23, is reaming to the bottom at 3,657 feet after having the 4¼ and 6⅝-inch casing pulled. Tholl Oil Co.'s No. 3 Muslow, Section 31, is to be standardized at 1,670 feet.

Gulf Refining Co. has started a new test in Section 22-20-16, in 268 Ferry Lake, which is at 865 feet after having drilled out the 10-inch plug at 120 feet. The same company has set 10-inch casing at 98 feet in its No. 5 Wemple, Section 14-20-15. In Section 10-20-15, M. I. Morgan is drilling at 2,025 feet in No. 8 Glassell. The Texas Company has a derrick up for No. 7 Curtis, Section 14. The same company is in Section 10-20-16, is washing to the bottom in No. 1 Hardy with the total depth at 2,309 feet.

Magnolia Petroleum Co.'s No. 4 Planters, Section 7 21-14, is coring in a sandy shale at 2,275 feet. Ohio Oil Co. is drilling at 2,340 feet in No. 1 Moodie Fortner, Section 5-22-16, and in Section 23-22-15, the Standish Oil & Refining Co. is drilling at 1,030 feet in No. 11 Allen. The Texas Company's No. 1 Long, Section 15-15-12, is drilling in shale at 580 feet.

La Salle Parish

A. E. Hudson has a rig up for No. 5 Urania, Section 7-10-2e, Urania Pool. In Section 8, Yeary and Bristol's No. 5 Urania, tested salt water at 1,552 feet and is shut down waiting orders. The 10-inch casing has been set at 100 feet in Louisiana Oil & Refining Co.'s No. B-37 Tremont, Section 25-10-1e, and in Section 2-9-1e, Wingfield and associates are setting 6-inch casing at 1,470 feet in No. 1 Gibson.

Monroe District

Consolidated Carbon Co.'s No. 1 White, Section 16-20-4e, Morehouse Parish, which had reached a depth of 1,277 feet, has been shut down because of high water. Falcon Drilling Co. has started a derrick for No. 1 Gladney, Section 5-21-7e. Louisiana Development Co.'s No. 38 fee, Section 21-20-5e, also has been shut down because of high water with the total depth at 2,227 feet. United Carbon Co.'s No. 1 Townsend, Section 29-21-5e, has been forced down because of high water. It had been drilling at 2,035 feet. Natural Gas Products Co. has cemented the 6-inch casing at 2,148 feet in No. 1 Handy, Section 18-20-5e.

In Ouachita Parish, Consumers Gas Co. has cemented 12½-inch casing at 202 feet in No. 1 Williams, Section 10-18-5e. Louisiana Gas Products Co.'s No. 5 Dewdrop, Section 20-20 5e, is drilling at 2,163 feet. The Palmer Corp. has set 12½-inch casing at 198 feet in No. 4 Millsaps, Section 25-19 2e. Ladell Properties, Inc., has shut down No. 39 fee, Section 1-19-4e, at 2,056 feet because of high water.

In Union Parish, R. W. Rhodes is making arrangements to abandon No. 1 Futch, Section 28-23-2w. It is at a total depth of 2,700 feet. Ruston Drilling Co. has a fishing job at 2 151 feet in No. 1 Gulley, Section 16-20-4e.

Webster Parish

Webster Parish got a 75-bbl. well in Magnolia Petroleum Co.'s No. A-2 Robins, Section 21-21-10. It is pumping from sand at 2,558-65 feet. In Section 23, Louisiana Oil Refining Corp. is arranging to bail No. 1 Davis at 4,346 feet. Ohio Oil Co. has junked and abandoned No. 4 Bank, Section 22, at 4,573 feet, and is to start a new No. 4. Magnolia Petroleum Co. has set 13⅜-inch casing at 450 feet for No. 3 Cox, Section 23, and is rigging up No. 1 Marshall, Section 21. Nor h Louisiana Gas Co. is drilling in lime at 3,700 feet in No. 1 Coyle, Section 22.

ARKANSAS

Union County

Drilling has been started and the 10-inch casing set at 100 feet in Brown and associates' No. 1 Slaughter, Section 2-17-16, Lisbon Pool. Mountz and associates' No. 6 Pratt, Section 8-18-15, main El Dorado Pool, is reaming down to the bottom and now is at 1,197 feet.

In the Norphlet Pool of Smackover, Gulf Refining Co. has cemented 6⅝-inch casing at 2,362 feet in No. 44 Hardy-Murphy, Section 3-16-15. In Section 10, Humble Oil & Refining Co. has started operations at No. 10 Pate and it at 400 feet where 12½-inch casing has been set. Lion Oil & Refining Co.'s No. A-9 Fenniken, same section, has 5⅜-inch casing set at 2.396 feet. No. A-11 Lawton is being drilled at 2,330 feet. Gulf Refining Co.'s No. 23 T. C. Murphy, Section 9, tested 75 feet of oil and 15 feet of salt water at 2,700 feet and now arrangements are being made for a test of 30 feet of broken sand at 2,710 feet. This is in the same section in which Stewart and associates completed No. 8 Murphy flowing 1,000 bbls. of 30 gravity clean oil and 10,000,000 feet of gas from the new 2,700-foot, or fourth, sand. The depth of the latter is 2,788 feet. Also in the same section, O. G. Murphy completed No. 6 Murphy at 2,337-40 feet, pumping 450 bbls. of fluid, 93 per cent salt water. Imperial Oil & Gas Co.'s No. 5 Murphy, same section, has been shut down and is waiting orders. It is at a total depth of 2,565 feet where it has been having a fishing job. Lion Oil & Refining Co. has cemented the bottom of the hole in H-2 Murphy. At a total depth of 2,316 feet this test tested 1,200 feet of fluid of which 95 per cent was salt water. At this same level National Gas & Fuel Corp.'s No. 4 Bilyew tested salt water. The 4½-inch casing has been recemented at this depth. The same company also has made a location for No. A-1 Bilyew, also in Section 9. The Ohio Oil Co. has started to drill deeper its No. 6 Murphy to the 2,700-foot sand level in this section. The hole is at 2,692 feet. Peer Oil Corp.'s No. B-1 Palmer has been shut down at 2,690 feet. All the latter tests are in Section 9-16-15.

In Section 8-16-15, Magnolia Petroleum Co. has cemented 8¼-inch casing at 2,652 feet in No. 9 Murphy. The same company in Section 17 is reaming down at 2,642 feet and is to set 8¼-inch casing.

In the Louann sector of the Smackover Field, Magnolia Petroleum Co. has cemented 6⅝-inch casing at 2,602 feet in No. 2 Crawford, Section 8-16-16. The same company in Section 7 is coring at 2,666 feet in No. 3 Freeman. It is setting 13⅜-inch casing at 1,140 feet in No. 1 Union Lumber Co., Section 21.

Ouachita County

Also in Louann but in Ouachita County, Copenhaven and associates are drilling at 1,600 feet in No. 3 Berg, Section 13-15-17. The 10-inch plug was drilled out at 60 feet. In Section 36, Middlesex Oil Co. has started actual operations in No. 5 Shirey. After drilling out the 10-inch plug at 41 feet, it now is at a total depth of 925 feet.

To the east in the Norphlet Pool of Ouachita County, Gulf Refining Co.'s No. 11 Bennett is at 2,215 feet. This is in Section 33-15-15. Sunny Jim Oil Co.'s No. 12 Berry, same section, is drilling in gumbo and streaked lime at 4,361 feet. Unity Petroleum Co.'s No. 8-A, same section, which was at 2,388 feet pumping salt water, has been shut down because of high water.

Magnolia Petroleum Co.'s No. 2 Gosden, Section 15-15-19, Stephens Field, is at 1,546 feet where the 6-inch plug is being drilled. Wesson and associates' No. 1 Culp, Section 22, still is waiting on a standard rig with 12 feet of sand at 2,212 feet.

Nevada County

Nevada County added a 50-bbl. pumping oil well to its list during the week with the completion of Martin and associates' No. 1 Haynie, Section 6-14-120. Fruen and associates' No. 1 Rhodes, Section 22-12-21, is drilling at 2,025 feet. Humble Oil & Refining Co.'s No. 4 Bodcau, Section 9-15-22, is to be drilled deeper after testing salt water at 3,576 feet.

Leasing in Arkansas

Announcement of the leasing by the Arkansas Fuel Oil Corp. of an 8,000-acre block in Calhoun County, Arkansas, has been made here. The company is reported to have paid $1 an acre for this block which centers in Section 35 and 36 in 13-14.

In these leases it is stipulated that drilling of a test shall be started not later than September. This block is in extremely rank wildcat territory and is considered one of the most interesting transactions completed in southern Arkansas and north Louisiana oil fields in many months.

Northeast Mississippi Play

With one test nearing the level at which the discovery well, the Amory Petroleum Co.'s No. 1 Carter, Section 7-31s-17w, Monroe County, found a gas sand, other tests drilling or starting, and with three major companies in addition to smaller interests blocking extensive acreage, northeastern Mississippi is promising to receive a very thorough play as a prospective oil and gas field

The Gulf Refining Co. of Louisiana and The Texas Company have had representatives in this district from Shreveport offices, and these with the Ohio Oil Co. have acquired considerable acreage and are blocking additional tracts not only in that county but also across the line in Itawamba County.

One test in particular is approaching the interesting stage. This is the Quincy Oil Co.'s No. 1 Durrett, Section 29-13-17, Monroe County. This is at 2,300 feet, or only 170 feet higher than the sand at which the discovery well is flowing 2,500,000 feet of gas daily. This test had a water flow at 2,152 feet and underreamed the 6-inch casing at 1,908 feet in trying to cut it off.

In the same county, the Amory Petroleum Co.'s No. 1 Dill, Section 12-13-18, has set 12½-inch casing at 670 feet. Operations were started in this test the latter part of March. The same company's No. 1 Hall, Section 8-13-17, is drilling below 1,328 feet. Buffalo Oil Co.'s No. 1 Crook, Section 4, is drilling in gumbo at 630 feet. In Section 22-13-7, Mawk Oil Co has a derrick completed for No. 1 Searcy. Natural Gas & Fuel Co. has set 12½-inch casing at 361 feet in No. 1 Fry, Section 22-13-7. It now is being drilled at 515 feet.

Itawamba County Test

In Itawamba County, the Itawamba Oil & Gas Co. has a derrick up for a test at No. 1 Evans, Section 17-10-10, and in Marion County, Hobson and associates have erected a derrick for No. 1 Clark, Section 29-11-14.

In Lee County, the Buffalo Oil & Gas Co. has completed a derrick for No. 1 Hickman, Section 12-8-6.

Thirty-four contracts have been closed for other tests in northeastern Mississippi and drilling is expected to be started in the near future. H. D. Easton, geologist of Shreveport, La., who made the location for the discovery well, has been in the district the past week making additional investigations.

The Amory Natural Gas Co., which was organized to furnish Amory and other towns between Amory and the discovery well with gas, has its pipe line virtually completed.

Organization of the Charles L. Tubb Oil Co., with holdings amounting to approximately 25,000 acres in that part of the state, has been announced as one of the leading transactions of recent weeks.

HOPES OF GOOD OIL PRODUCTION IN WILDCATS ARE GIVEN SETBACK

By Neil Williams

SHREVEPORT, La., Apr. 25.—Except in the Pleasant Hill district of northern Sabine Parish, Louisiana, hopes of good oil production in the present active wildcat areas of north Louisiana and Arkansas have received hard setbacks the past few weeks, namely, in the Carterville district of northern Bossier Parish and Richland Parish, Louisiana, and the Lawson Urbana district of Union County, Arkansas.

Only the past week, the Lawson-Urbana district got another big gas well in J. W. Olvey's No. 1 Simmons, Section 15 18-13, which helps to define this territory as one for large gas production only. Other tests nearing the pay level found by the Olvey well at 2,673-82 feet, also give indications of gas only. Simms Oil Co.'s No. 1 Crawford, Section 14, has just cored what looks like a good gas sand at 2,637-40 feet.

Two tests in this district were abandoned during the week These were the Marine Oil Co.'s No. 1-B Winn estate, Section 10, which was dry at 3,002 feet, and Superior Oil Co.'s No. 1 Jerry, Section 32-17-13, dry at 3,022 ftt. In the wildcat area to the west, Rovenger Oil Corp.'s No. 1 McCain, Section 4-17-14, has tested salted water at 2,642-49 feet.

Gas Field Only

In the Carterville area, the formerly promising Louisiana Oil & Refining Corp.'s No. 1 Blanton, Section 23 23-12, is making an estimated 28,000,000 feet of gas and salt water, and apparently determines this district for the time being as a gas field only. With the exception of Woodley & Collins' No. 2 L. & A., recently completed flowing some oil, all wells here are gassers.

All wells so far completed in the wildcat Richland Parish also have been gas producers only, the latest being S. D. Hunter's No. 1 McCoy, Section 29-16 6e, making 10,500,000 feet Several other tests are at the interesting stage in this parish, chief of which is the Gulf Refining Co.'s No. 1 Wayne Lumber & Timber Co., Section 36-17-5e. It is at a total depth of 2,865 feet. At present it has a flow of salt water and efforts are being made to kill this. Richland Parish has been especially hard hit by floods and many operations are at a standstill.

The Pleasant Hill district also got what apparently is a small gas well in Beckman & Freeman's No. 1 Logan, Section 28-10-12, but this is to the north of what operators generally think will be the main oil-producing sand.

Semiwildcat Completions

Among completions in semiwildcat territory was Gulf Refining Co.'s No. 37 Robinson, Section 25-13 11, Red River Parish. This well is pumping 80 bbls. from a total depth of 2,561 feet, and is causing considerable interest in that vicinity.

Magnolia Petroleum Co.'s wildcat test in Claiborne Parish, Louisiana, its No. 1 Lee, Section 16-22-8, has tested salt water at a total depth of 3,183 feet. This test has been watched by many operators.

The Arkansas Fuel Oil Corp is turning considerable attention to Calhoun County, Arkansas, by its blocking of 8,000 acres centering in Sections 35 and 36 in 13-14, with stipulations for the starting of a test by September. It paid $1 an acre.

There were 13 wildcat completions during the week of which only three were producers, the remainder being abandoned. Wildcat operations were:

NORTH LOUISIANA

Beauregard Parish

S. P. Borden's No. 1 L. and A, Section 9-15-7, is drilling in gumbo at 1,800 feet. Kimbrough and associates' No. 1 Cargle, Section 27-15-8, still is shut down at 1,550 feet.

Bossier Parish

Clark and Norton's No. 1 Ford, Section 32-23-13, is drilling at 3,090 feet. Doern and associates have abandoned temporarily No. 1 Thomas, Section 10-22-11, at a depth of 2,765 feet. The Palmer Corp.'s No. 4 Bossier, Section 9-16-11, is drilling in sandy shale at 2,590 feet. Simms Oil Co.'s No. 2 Sandidge, Section 5-18-11, is in shale at 1,862 feet. Sligo Syndicate has drilled out the 12½-inch plug cemented at 185 feet and now is at 200 feet in No. 1 Jeter, Section 23-17-12.

In the Carterville area, Louisiana

(Continued on Page 149)

San Antonio Drilling Little Affected

Seventy Operations in Progress in Laredo Territory. Gas Development Large Factor in Southwest Texas

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Apr. 25.—Operations in 41 counties surrounding San Antonio, and usually included in the designation "San Antonio territory," have shown very little fluctuation since the first cut was made in the price of crude oil. In fact, since the last of January, other than a little fluctuation from week to week, the number of operations in the district has been nearly unchanged. This is accounted for probably by the fact that there was no unusual amount of wildcatting going on at the opening of the year and no new fields under intensive development. Also quite a number of rigs are running to develop gas, which has about offset any decrease otherwise. January 29 there were 167 operations listed, which increased to 186 on February 19, and for the past week ending April 23 there were 187. The highest point was reached with 191 on March 12.

In the Laredo territory the effect has been more marked, and early in the year there were approximately 100 operations listed as compared with 70 at the close of last week. Last week in the entire Southwest Texas district, including the Laredo territory and the coast country up as far as Refugio and north as far as Milam County, there were only two oil wells completed, one the seventh well in a new pool, the Adkins Pool in eastern Bexar County, for 2 bbls. on the pump at 600 feet. It was McClanahan's No. 4 Sodrok, and the other was the Kent-Middleton No. 1 Henne, Meyer in the Rockdale Field in Milam County, which extended the field into the corporate limits of Rockdale, with an initial production of 100 bbls., and is estimated at 25 bbls. on the pump.

All the other completions in Southwest Texas were gassers, three of them in Laredo, one of which was a big wildcat, and two in the White Point district in Nueces and San Patricio Counties, one on the north side of the bay and one on the south. Total gas developed at Laredo was 140,000,000 feet, and total at White Point was 65,000,000 feet.

Laredo District

In the Laredo territory last week the most important completion was the Cole Petroleum Co.'s No. 36 Benavides in sand at 2,328-36 feet, gauging 75,000,000 feet. It is in Block No. 14 of Survey No. 412, located 169 feet from the east line and 266 from the north line of the block, and in wildcat territory and in a new sand. It is 4 miles west of the north end of the Cole Field and is in Webb County. Production in the Cole Field is at approximately 1,650 to 1,760 feet. The Carolina-Texas Field is 6 miles or more to the northwest, and there are several sands in it, some of which might correlate with this sand. The probability that the well would make a big gas well was indicated in The Oil and Gas Journal last week when it tested with rock pressure of 700 pounds. Cole has made a location for No. 43 Benavides, which is about 1,200 feet to the east of this, and is moving on. No. 43 is in Block No. 13 of Survey No. 412 and is 1,060 feet from the east line of the block and 450 feet from the south line.

Another gas well completed in the Laredo territory last week was O. W. Killam's No. 1 Bruni in Block No. 65 of the Bruni tracts at 2,167 feet, estimated at 25,000,000 feet of gas. The sand depth is 2,158-67 feet. The well is the second completion on the block and is 4 miles east of production in the Aviator Pool and 4 miles north of production in the Henne, Winch and Fariss Pool. The discovery well there was drilled by Killam & Maddox, 1,170 feet from the south and 150 feet from the west line of Block 65, in sand at 2,137-44 feet and making 50,000,000 feet of gas. It was completed March 18. The Killam well is 1,470 feet from the south and west lines of the same block. Discoveries heralded as new pools in the Mirando territory frequently merge into old pools, and it remains to be seen what this one will do.

At White Point W. L. Pearson completed No. 4 Dunn on the south side of the bay in Nueces County at 2,363 feet, estimated at 40,000,000 feet, and the No. 4 Cage on the north side of the bay in San Patricio County at 2,340 feet, estimated at 25,000,000 feet. Houston Gulf Gas Co. recently disposed of $2,500,000 of notes with which to extend its pipe line from the Refugio Field to this field a distance of about 40 miles.

Somerset Field

During the week Witherspoon Oil Co. abandoned No. X-5 Pyron in the Somerset Field in Bexar County at 1,796 feet in proven territory. Medina Oil Co. abandoned No. 10 Taylor in Medina County in the Hondo Field at 456 feet dry.

In the Laredo territory, Suladie Drilling Co. abandoned the No. 4 Puig in Block 49 at 1,674 feet. H. E. Neal abandoned his No. 1 Bruni in Block 41 of the Bruni tracts, a half mile east of production, at 1,810 feet dry. Killam abandoned location for No. 4 Hinnant in Zapata County, on the edge of the old Mirando Valley Pool. Associated Oil Co. abandoned its No. 3 Martinez, Share No. 1 Block No. 18, Jim Hogg County, in the Las Animas grant, at 2,142 feet. Alworth-Stevens-Hild abandoned No. 7 M. Garcia in Block No. 5, Survey No. 39, Jim Hogg County, at 1,030 feet in salt water. It is a little south of their producer discovery well.

In Duval County, on Survey 174, where O'Hern & Seacord got a gas well making oil some time ago, 6 miles south of the Cole gas field, they have put their No. 5 on the pump, and it gauged 60 bbls. the first eight hours.

O'Hern & Seacord Field

Magnolia Petroleum Co.'s No. 2 Benavides, Block 7, Survey 174, located 330 feet to northeast and northwest lines, is drilling at 3,501 feet. Moody Oil Corp.'s No. 1 J. Benavides, Block 40, Subdivision 1 of the Mesquite ranch, 150 feet to northwest and southwest lines, has moved back and resumed drilling at 1,850 feet.

Cole Gas Field—Duval

Cole Petroleum Co.'s No. 37 Benavides, Survey 21, Block 6, located 150 feet to southeast lines and 450 feet to southwest lines, has derrick up; location has been made in Survey 10, Block 12, at 155 feet to northeast and northwest lines, for No. 38 Benavides; No. 40 Benavides, Survey 20, Block 7, at 660 feet to northwest and southwest lines, is on sand at 1,580 feet; No. 41 Benavides, in Survey 18, Block 8, at 660 feet to northwest and northeast lines, is rigging up and location has been made in Survey 23, Block 2, at 660 feet to northwest and northeast lines, for No. 42 Benavides. Barkley-Morgan-Gulf are rigging up for No. 3 King-Harper in Survey 323, in NW cor. of Gulf's 100-acre lease. Houston Oil Co. is moving on in Survey 387 at 155 feet to southwest and southeast lines for No. 1 "B" S. Benavides. Houston Oil-Sun Oil Co.'s No. 2 "A" Benavides, corner of Blocks 407, 408 409 and 410, has been spudded in.

Piedras Pintas Salt Dome

Humble Oil & Refining Co.'s No. 1 Carrillo, Survey 82, located 300 feet to east line and 3,200 feet to north line, is drilling at 300 feet.

Randado Field—Jim Hogg

Livingston & Ritchson's No. 1 Palacious, Survey 287, Block 18, located 150 feet to NW cor. and 2,000 feet east of the line of production of the field, is on sand at 1,360-65 feet.

Henne, Winch & Fariss Field

Magnolia Petroleum Co.'s No. 27 Martinez, Survey 276, located 1,750 feet to east line and 2,525 feet to north line, at 2,037-42 feet, tested salt water and has now set casing at 2,062 feet to shut off water.

Kitselman & St. Albans Field

Edward St. Albans' No. 7 Lopez, Share 1, Block 7, located 750 feet to south line and 916 feet to west line, has been spudded in; location has been made in the same block at 1,058 feet to south line and 974 feet to west line, for No. 8 Lopez. K. & S. Corp.'s No. 57 Holbien, Survey 17, Block 40, located 330 feet to NE cor., is drilling at 2,398 feet. Associated Oil Co.'s No. 3 Martinez, Share No. 1, Block 18, located 800 feet to west line and 150 feet to north line, is being placed on the pump at 2,142.5 feet.

Alworth Pool

Magnolia Petroleum Co.'s No. 22 Merchants State Bank, Survey 236, located 450 feet to west line and 150 feet to south line has sand at 1,059 feet. Alworth Brothers' No. 7 M. Garza, Survey 39, Block 5, located 385 feet to northwest lines and 135 feet to southwest lines, elevation 492.8 feet at 1,017 feet, tested dry and is drilling deeper.

Schott Pool—Webb

Laredo Oil Co.'s No. 12 J. M. Garcia, NW NW, Survey 458, located 760 feet to west line and 160 feet to north line, is drilling at 1,785 feet. Jones-Garcia Oil Co.'s No. 3 Garcia, north portion of Survey 463, at 150 feet to NE cor., has been rigged up and is standing.

Albercas Pool

O. W. Killam's No. 1 Bruni, Block 65, Albercas grant, 1,470 feet to SW cor., at 2,158-67 feet, tested 30,000,000 feet of gas through Halliburton tester and set casing and has been completed; derrick is up in the same block, 2,070 feet to west line and 1,470 feet to east line, for No. 2 Bruni, and No. 3 Bruni, in Block 64, at 150 feet to north line and 450 feet to west line, has been spudded in and is drilling at 300 feet.

Aviator or Bruni Tracts

Aztec Oil Co.'s (Suladie Drilling Co.) No. 4 Puig, N half of Block 49, located 200 feet to south line and 350 feet to east line, has set casing at around 1,640 feet. H. E. Neal's No. 1 Bruni, Block 41, located 150 feet to NW cor., is drilling at 1,801 feet. Ray Woods has derrick up in Block 5, of the Puig ranch at 150 feet to northwest lines, for No. 1 Puig.

Mirando Valley Field

J. L. Johnson's No. 1 Anderson, Survey 2,363, Block 6, located 150 feet to SW cor., is at 1,881 feet waiting for casing.

Carolina-Texas Field

D. J. Simmons' No. 2 de la Garza,

(Continued on Page 150)

ZAPATA WELL IS DISAPPOINTMENT; FOUR PROMISING LAREDO WILDCATS

By B. D. Stevenson

SAN ANTONIO, Tex., Apr. 25.—Disappointment was registered in wildcat operations the past week when The Texas Company's No. 5 Jennings in Zapata County, which when tested had shown up for a good oil well in pure wildcat territory, proved a failure after casing had been set and the well tested in the regular way. For more than a year The Texas Company has been drilling on the Cerrito Blanco grant in Zapata County, 15 miles southwest from the Mirando Valley oil field and a few miles south of the old Jennings gas field. This was the fifth well. The first blew out at 3,965 with heavy volume of gas and high rock pressure and one of the workmen was killed. The second drilled 50 feet or so to the west proved a failure. No. 3, drilled 1½ miles south, was a failure. No. 4, drilled 1½ miles southeast of No. 3, had a showing at around 1,460 feet and deepened to 1,961 feet, came in a big gasser and has since made a little oil. No. 5, a mile and more west of it, tested over a week ago, filled three joints with oil and the bottom joint of the drill stem with sand. It looked like a sure enough producer and the long predicted discovery oil well of that territory. But it failed to make good the past week when casing was set and the well drilled in and swabbed.

Of four wildcat wells in the Laredo district reported last week as likely to open producing spots the Cole Petroleum Co.'s No. 36 Benavides in Block 14 of Survey 412, 4 miles west of the Cole Field, in a sand at 2,328-36 feet, was being tested late last week. It tested the week before for a big gas well. Humble's No. 4 Kohler, several miles north of the Cole Field and in Duval County, on Survey No. 400, which showed 30 bbls. of oil out of 250 bbls. of fluid on a test, is being plugged back and will be tested again before running casing. It is due north of the Cole and the O'Hern-Seacord production and in the direction where it is expected someone ought to pick up more production. The other of the four tests in the Laredo district that threatened new producing spots has been mudded off and drilling deeper. Killam-Maddox's No. 1 Bruni, half-mile south of the town of Bruni, in Webb County, and 2 miles west of the Cole gas field, blew in for about 10,000,000 feet of gas and considerable fresh water at 528 feet while drilling at 1,400 feet. For a time it ran wild and threatened to crater. It is now mudded off and is going deeper.

Karnes County Wildcat

Alamo Drilling & Leasing Co.'s No. 1 Szalwinski, a mile east of Fall City in northwestern Karnes County, is standing and it is understood there have been some negotiations for its purchase. The well found about 80 feet of sand at 1,803-85 feet as reported a week ago. The sand is a brown sand and undoubtedly has some oil in it. The well is 50 miles from any production. Possibly it will make a well. The amount of sand is ample but the amount of saturation didn't seem to be so great, though it yielded oil on an ether test. It was the intention of the owners to set and test but an offer of purchase in the present condition is said to have arrested the plans. The rank wildcat nature of the well and the amount of sand is the prime feature. It is sure to attract some attention to that area in any event and will result in the drilling of other structures in that territory. The sand is supposed to be from the Cook Mountain topped at about 1,450 feet.

Maverick County

Maverick County is coming in for some more attention due to the increase

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Gulf Coast Shows 4,194 Bbls. Increase

Due to Completion of Big Wells at Spindletop, Hull and Lockport Pools. Slight Decrease in Southwest

By P. L. McGreal
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Apr. 25.—It has been a quiet week in the coastal pools, a state holiday—San Jacinto Day — intervening to add to the lack of interest. The effect of the curtailment policy of all major companies is decidedly noticeable, especially in the pools. But little change is noted in the wildcatting operations, especially that being done around old semi-defined salt domes and the more recent discoveries by geophysical methods.

It requires a long time to develop such spots, hence drilling tests are kept going, but no new acreage is being acquired by any of the companies. In the pools the order has gone forth to confine drilling of new wells to offset locations, such as required by lease obligations.

No one ventures to predict how long the depression will continue, although many producers and royalty owners express the opinion that conditions in the Gulf Coast region alone do not justify any further price reductions They assert the deep sands at Spindletop have been defined and the only menace there will be from production found below 5,000 feet. Few individuals or small companies are financially capable of drilling many such deep wells and one or two failures would seriously cripple them. Besides, all the available close-in acreage on the south and southeast sides of the dome is held by one company. This will result in conservative drilling.

This statement likewise applies to all the new domes, such as Nash, Big Creek, Orchard, Stark (La.), Sweet Lake (La.), Eagle Point (La.), and others. All the acreage considered within productive limits is held by one or two companies. The Lockport (La.) is another example.

Under these conditions oil men say additional price cuts are scarcely justifiable, except as they are made in sympathy with reductions in other divisions where such conditions do not prevail. All coastal crudes are now run through the stills. Grade A has the greater percentage of lubricating content. Grade B cuts into gas oil; a small percentage of gasoline and lubricants.

Estimated Dily Average

The estimated daily average gross production of the Gulf Coast region for the week of April 23 is placed at 146,979 bbls., an increase of 4,194 bbls. This is due to the completion of big wells in the Spindletop, Hull and Lockport Pools, late last week and early this week.

The estimate for the week of April 23 for each pool is as follows:

Pool—	Daily Av.
Boling	2,050
Batson	1,380
Blue Ridge	3,020
Big Creek	5,520
Barber Hill	1,000
Dayton	35
Damon Mound	927
Edgerly (La.)	700
Goose Crek	9,475
Humble	4,370
Hull	16,930
High Island	450
Jennings (La.)	930
Markham	300
Nash	900
Lockport (La.)	7,700
Orange	5,375
Orchard	25
Pierce Junction	7,072
Piedras Pintas	105
Spindletop	50,100
Saratoga	1,165
Sour Lake	4,940
South Liberty-South Dayton	3,760
Stark (La.)	1,600
Vinton (La.)	5,675
Welsh-Anse La Bute (La.)	50
West Columbia	9,850
*Miscellaneous	1,575
Total	146,979

*Includes Nacogdoches, Washington and Kleberg Counties in Texas; Cameron, Calcasieu and Iberia Parishes, in Louisiana.

Southwest Fields

The estimated daily average gross output of southwest fields for the week of April 23 is placed at 37,930 bbls., a decrease of 45 bbls. from the previous week. The estimate for each field is as follows:

Field—	Daily Av.
Luling	18,300
Mirando	14,875
Somerset	1,240
Rockdale-Minerva	975
Lockhart (Lytton Springs)	2,320
Miscellaneous	220
Total	37,930
Grand total for week	184,909
Grand total last week	180,760
Net increase	4,149

Wells Completed and Bailing

The Lockport (La.) Pool furnished the best well of the week in the Vacuum-Gulf company's No. 14 Miller, flowing initially 2,000 bbls. at 4,400 feet. It came in early in the week.

In the Vinton Pool, The Texas Company's No. 16 Vincent will pump at 2,450 feet. Marrs McLean's No. 1 G. N. G. is a salt water hole at 2,175 feet. The Vinton Petroleum Co.'s No. 6 Rescue is bailing at 2,400 feet.

In the Hull Pool, the Republic Production-Houston Oil Co.'s joint No 35 Dolbear, a workover, is making 800 bbls. at 3,000 feet. No. 33 Dolbear, another workover, is bailing at 3,450 fet. The Mecom Oil Co.'s No. 2 Taylor is bailing at 3,900 feet after being deepened. The Gulf Production Co.'s No. 84 Phoenix will pump at 3,125 feet.

The Texas Company abandoned No. 51 Hogg on the north side at West Columbia at 2,840 feet.

In the Batson Pool, S. R. Buchanan's No. 93 Milhome is pumping 5 bbls. at 1,006 feet. The Deutser Oil Co.'s No. 1 Colorado bailed salt water at 1,300 feet. The Boling Oil Co.'s No. 3 McCarson on the dome in Boling Pool is making 10 bbls. on the jack at 400 feet.

In the Goose Creek Pool, the Humble Oil & Refining Co. abandoned No. 70 Smith at 5,060 feet. No. 56 Smith is bailing at 4,145 feet. The Gulf Coast Oil Co.'s No. 16 Galliard is doing the same at 2,872 feet.

Lee & Woodard's No. 1 Settegast on the northwest side at Pierce Junction, taken over from Martin and others, was drilled deeper at 3,440 feet and is good for 150 bbls. H. R. Cullen's No 1 Howe on the east side, bailed dry at 4,060 feet, after it was worked over.

In the Markham Pool, John Deering-Moody Oil Corp.'s No. 3 Myers is setting strainer at 3,326 feet to test 6 feet of richly saturated sand.

Effect of High Tides

High tides in the Gulf of Mexico are responsible for increasing the output of old wells in several of the pools. This phenomenon has been noted for years and commented upon from time. The Goose Creek, Humble, High Island and Hardin County districts are the pools particularly affected by either continued high or low tides in the Gulf, these in turn influencing the waters of the bays and bayous. In fact all the pools are more or less affected but those mentioned to a greater degree than the others. The Spindletop Pool is also in the same class. It is more noticeable in the original shallow cap rock section than it is in the recent deep sand section, off the dome on the southwest side.

Operators in the Hardin County pools and in the south Louisiana districts are preparing to impound the salt water from the wells with the advent of the rice season. The salt water is run into storage in earthen reservoirs between April and October to prevent pollution of fresh water bayous from which the rice planters draw water to flood their rice farms. When the crop is harvested the salt water is turned into the streams and finds its way to the Gulf of Mexico. Taking care of the salt water in this manner adds to the cost of production, but it must be done to avoid damage suits instituted by the rice growers.

DRILLING IN THE POOLS

Wharton County

The Boling Pool in Wharton County, near the Fort Bend County line, which was opened by The Texas Company in December, 1925, and which witnessed quite a boom during the first six months of 1926, is again to the front with eight rigs running and two locations made. The pool had 30 producers and a production of 8,500 bbls during the last week of March, 1926, but declined to an average of 1,200 bbls. Close offset drilling caused the boom in the early history of the pool, most of the production being on the east and west flanks of the dome and from shallow sands above the salt. The wells on the dome get a thin sand from 400 to 450 feet, 19 gravity oil. Off the dome the production is deeper.

On the dome, the Weed-Gayle Oil Co. is drilling No. 1 Wyteck at 635 feet with a location for No. 2 Bey. The Zeno Oil Co.'s No. 1 Kostnick is at 345 feet. Off the dome the Atlantic Oil Producing Co.'s No. 1 Harrison is drilling around 560 feet with a location for No. 1 Hooper. The Vacuum Oil Co.'s No. 4 Hooper is at 4,709 feet. The Gulf Production Co's No. 4 Chase is at 765 feet. The Texas Company's No. 3 G. Feler is at 4,718 feet. On the northeast side of the dome, The Texas Company s No. 2 Farmer is below 4,435 feet and Sun Oil Co.'s No. 2 Farmer is around 2,700 feet. The latter two tests are over the line in Fort Bend County.

Fort Bend County

In the Big Creek Pool, the Gulf Production Co.'s No. 40 Davis is around 2,700 feet and No. 41 is about 3,000 feet. No. 1 J. H. P. Davis is drilling at 3,675 feet. No. 2 Hausler is drilling at 3,960 feet. The Texas Company's No 3 fee is at 4,235 feet and No. 4 fee around 3,643 feet.

The Gulf company is drilling No. 11 Moore at Orchard, where it has one well pumping 25 bbls. per day.

In the Blue Ridge Pool, the Gulf Production Co.'s No. 9-B Blakely is at 3,265 feet and No. 15-C is around 3,254 feet. No. 4 Luscher is drilling at 3,219 feet. No. 10 West-Schenck on the south flank of the dome is at 2,500 fet and No. 5 Invincible on the southwest flank is at 3,235 feet. The Humphreys Corp.'s No. 3 West-Schenck is at 3,090 feet. The Abercrombie Oil Co.'s No. 9 West-Schenck is drilling around 2,780 feet. Same company's No. 1-A Robinson on the northwest is drilling deeper at 3,109 feet. The Navarro Oil Co.'s No. 2 Robinson is idle. The Overly Production Co.'s No. 1 Blakely is at 3,815 feet. W. E. Woodruff, trustee, No. 1 Adams is around 600 feet.

Thirty Derricks Toppled

A 60-mile-an-hour wind early Thursday morning toppled over 30 derricks in the Pierce Junction Pool. The derricks in these coastal pools are so closely spaced that one falls on another, thus demolishing all down along the line. Six derricks were demolished in the Big Creek Pool. Field workers escaped injuries.

When the storm struck the Pierce Junction Pool, the Gulf Production Co.'s

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TEN PAY COMPLETIONS IN MEXICO SHOW 76,750 BBLS. POTENTIAL HEAD

By George Blardone
Staff Correspondent, Mexican Fields

TAMPICO, Mexico, Apr. 22.—With 23 wells completed the last week Mexican fields in the Tampico district scored 10 pay completions that show new production (potential head) of 76,750 bbls. This can be marked up as the best week Mexican fields have known for many months past. All of the pay completions were in the northern fields. The one completion in the south fields drilled into salt water.

The excitement centered on three wells that totaled 60,000 bbls., drilled in the Salina-Tortuga sectors, which adjoin north and south, along the railway right of way of the Tampico-San Luis division of the National Lines of railways.

Some interest was evinced in this immediate district last January when National Lines' No. 53 Conteca, a railway right of way well came in for some 8,000 bbls. at 2,150 feet. Flanked right and left by dry holes it was still an interesting well; and, now this past week tells the story. It commenced with National Lines, No. 54 Conteca, which is rated 20,000 bbls. at 2,612 feet—deep, to be sure. Right on top of it came Mexican Petroleum Co.'s Nos. 1 and 2 Guzman-Tortuga, just north of the railway line and in direct juxtaposition to the National Lines' No. 53. In this connection the Railway's No. 54 (with a dry hole in between) bears to the west in the right of way. Adjoining the right of way, on the south, is Mexican Gulf Oil Co., (east) and Kern Mex Oil Fields Ltd., (west). The former has its Nos. 27 and 31 Salinas drilling now 1,423 and 1,445 feet, in gray lime, respectively. Kern Mex's No. 3 Clarin is drilling by a bit at 1,500 feet, gray lime, having had a fishing job on hand.

This immediate district has been more famous for dry holes, or at best, fluid wells since as far back as 1913, and it was practically abandoned until the National Lines', in its constant search along its right of way kept shoving east from previous production, and, despite dry holes, finally brought in its No. 53 as above reported. Surface indications in this territory are practically nothing. It is the luck of the game. The result is an awakening interest in the Tortuga and the Ochoa on the north of the railway line, and in the Salinas on the south. The production is made quickly available for the wells recounted are close to existent pipe lines hence only field stations and short laterials are necessary to

(Continued on Page 150)

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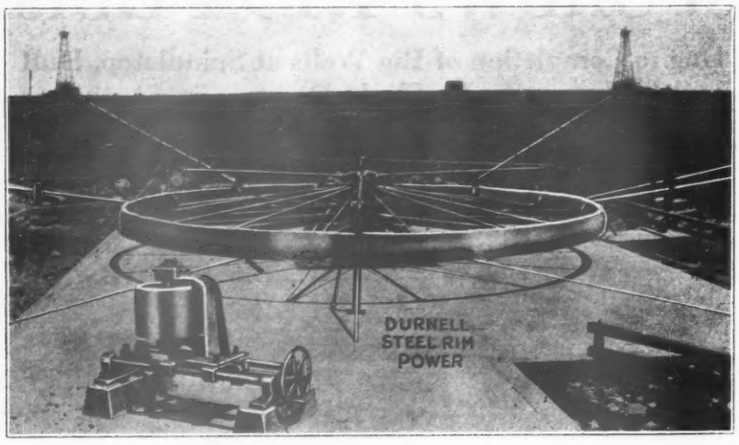

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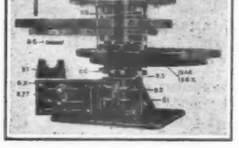

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Big Horn Basin Development Planned

Deep Test to Be Drilled in Hot Springs County. Lake Creek Test Abandoned. Showing in Paradox Valley

By Frank B. Taylor
Staff Correspondent, Rocky Mountain Area

CASPER, Wyo., Apr. 23.—The Big Horn Basin Country in Wyoming is expected to have a development campaign this season. Last fall, operations were shut down for the winter with four black oil pools in the southern part of the basin in the process of development by the Union Oil Co., the Producers & Refiners Corp. and the Utah Oil & Refining Co.

During the winter the Ohio Oil Co. struck black oil in the Oregon Basin, near Cody, which appears to open a new field of considerable magnitude. A shallow pool of light oil was also being developed last year to the northeast of Cody and across the Shoshone River, by M Guiterman and others, this pay being found at about 1,200 feet and the production is a good grade of green oil coming from the shale.

The Midwest Refining Co. and the Wyoming Gas Co. are engaged in laying a gas line from the Buffalo Basin Field, west of Grass Creek, to a connection with the lines already laid in the central part of the basin.

The Elk Basin Field in the northern part of the basin is to be operated under the unit plan as devised by the Government and the oil companies, and also an experiment in the pumping of gas down a "key" well to the sands in order to help the wells flow is being conducted in this field, that is expected to bring much more oil to the surface than by any other method.

Active work has been started already at Black Mountain the past week by the Utah Oil & Refining Co. after the shutdown there for the winter and this will include four wells drilling shortly; only one well is drilling so far, however.

Hot Springs County

On the Little Sand Draw Dome west of Kirby, Hot Springs County, the McPherson Syndicate has cleared the drilling well there of iron and the hole is now at 2,600 feet with the old bottom at 2,900 feet, and a showing of oil. This is a small structure and for that reason has never been drilled by the larger companies, it has room for only a few wells in case production is found. The Eagle sandstone surfaces the top of the structure.

The Continental Oil Co. and Joe Cook will drill a deep test on the Little Grass Creek Dome in Hot Springs County this season. This structure lies northwest of the Grass Creek Field and has had two wells drilled to the Frontier formation. Both came in gas; the Embar, Tensleep and Amsden sands produce oil in Grass Creek Field so it is considered that these sands should hold oil on the Little Grass Creek Dome and probably in greater quantities because the small dome is at a higher elevation structurally, than the main field. The syncline between the main field and the little dome is only about a mile wide.

The Union Oil Co. of California has definitely abandoned the test on Section 34-43-91, in the Lake Creek Field near Thermopolis. The well was drilled to a depth of 4,400 feet and did not find commercial production in any sand

The Summit Oil Co., drilling a wildcat near Frannie, in the northern part of the Big Horn Basin, Section 25-57-98, has been shut down the past winter with the bottom of the hole at 1,155 feet. This well has been taken over by the Ralph Arnold interests and will be completed this season; drilling is to be started again at once. Ralph Arnold is a geologist from California who has made extensive surveys in Montana last year and is interested in several wells in that State.

Southern Wyoming

The southern part of Wyoming is rather quiet due to bad roads resulting from the snowstorm of last week. The Elkhorn Oil Co. is drilling in the La-Barge Field at 3,493 feet and has been in sand for the past 200 feet without a break. The well has 3,400 feet of fluid in the hole with some gas coming up through, so it is rather hard to determine whether a showing was found in this sand or not.

On the Medicine Bow Dome, Carbon County, Section 25-21-79, the Producers & Refiners Corp. and the Marland Oil Co., drilling a joint well, found a showing of oil that will make a commercial producer at 4,040 feet. This would be the Frontier sand and therefore the oil will be a light crude.

Salt Creek Completions

In the Salt Creek Field, the Midwest Refining Co. completed three wells in the central part of the field, two of which are Lakota sand and one a second sand well.

The Wyoming Associated Oil Co. drilled in a large producer in the Lakota sand and it made 3,677 bbls. on a 24-hour test. It is located on Section 23-40-79.

The Midwest Oil Co. brought in another Lakota well on Section 35-40-79, that started off at 1,015 bbls.

The Wyoming Associated Oil Co. also completed a producer in the first Wall Creek that made 46 bbls. from a depth of 1,237 feet. The two new Lakota sand wells were shut in.

The E. T. Williams Oil Co. has started drilling on a new well on Section 11-39-79, this is the first test to be put down by this company this year.

The Producers & Refiners Corp. has abandoned the drilling of tests in the Clay Basin structure in northeastern Utah. This area is thought to be a continuation of the Baxter Basin in Wyoming, but the company failed to find anything commercial.

In the Moab district of Utah, the reports are routine in the main, the discovery well is still shut down waiting on the result of the Shafer Dome well, 5 miles south, this latter is drilling in rock salt at 5,447 feet. A rope socket was lost and caused some trouble and about 100 feet of hole had to be cemented and redrilled, but that is completed now.

The Prommel well of the Snowden & McSweeny interests, drilling on the Cane Creek structure, is at 1,510 feet and expects the pay at 2,640 feet that was found in the discovery well at 2,000 feet.

The wildcat of the General Petroleum Co. in the Paradox Valley, Section 6-47-18, is reported to have a showing that will make a producer and therefore open a new field. This oil was found at 3,200 feet and the hole was full of mud and fluid at the time. In spite of the column of water and mud, showings of light oil reached the surface. A string of casing is now being run and a test will be made of the sand.

Governor Emerson wiped some 2,500 corporations from the state records in Wyoming during the past week. About two-thirds of these were oil companies formed in the boom period in Wyoming oil and which have not paid the state tax or fees. Stockholders of these firms are scattered all over this and other countries, and the action of the governor was taken after due notice to the last known address of the firms cited. This action will definitely put an end to the sale of dead issues of stock in Wyoming oil firms.

Colorado Drilling

The new strike on the Iles Dome by the Midwest Refining Co. is making oil at the rate of 1,354 bbls. per day through a partly closed valve. The Midwest Refining Co. has made arrangements with The Texas Company for additional storage to hold this crude.

The Repollo Oil Co.'s well drilling at Boulder is bottomed at 4,410 feet, and is thought to be on top of a gas sand. The boiler is moving back and a string of pipe will be set before drilling in.

Montana Operations

The Sunburst Field had two good wells completed the past week. The Dakota Montana Oil Co. brought in a well in the gusher class on the Wilcox lease, Section 7-34-1, that started off at 400 bbls. oil. The oil was found in the Ellis sand at 1,368 feet, and this well appears to be the opening producer of a new pool on the southeast extension of the Sunburst Field, as it is located about 2 miles beyond any other large wells. The strike has caused a rush to that area for leases.

On Section 32-35-1, the Ohio Oil Co. drilled in a producer good for 300 bbls. on the Putnam lease, finding the oil in the Ellis sand at 1,491 feet.

The Ohio Oil Co. has leased nearly a whole township in Township 37-3, where the company expects to prospect for gas this season. An old well in this area came in a big gasser, but all that time gas was not being considered and the well was abandoned. The Ohio Oil Co. has a number of subsidiaries in Wyoming and Montana supplying gas to cities and towns, and the company is able to finance pipe lines to carry its gas to market.

The Allen Oil Co., drilling a wildcat about 25 miles northwest of Great Falls went through the Madison lime and into the Devonian at 2,550 feet, finding a gas flow in the Devonian. This deep formation has carried several showings of oil and gas in northern Montana and may some day develop a deep oil field.

On Section 13-17-23 the wildcat being drilled by Rowland and others is showing some oil, but not commercial size. This well is on what is known as the Black Butte structure.

The Hope Engineering Co. has closed contracts to lay a gas line from the Cabin Creek Field to Miles City, a distance of 70 miles. The line will be 8-

(Continued on Page 161)

TURNER VALLEY WELL NOW AVERAGES 641 BARRELS 73 CRUDE NAPHTHA DAILY

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 23.—In the Turner Valley Field southwest of Calgary, Royalite Oil Co.'s No. 4, LSD 12, Section 7-20-2w5, further increased its production in March, making an aggregate of 19,868 bbls. of 73 degree crude naphtha, or an average of approximately 641 bbls. a day. Production has been steadily increasing since October, prior to which time the well averaged around 15,300 bbls. a month. Since then the figures are: October, 15,365; November, 15,563; December, 18,447; January, 18,846; February, 17,829; March, 19,868. It claimed March establishes a new record for actual production. January, 1926, had shipments of 20,179 bbls., but this included considerable crude in storage carried over from the previous month. It is claimed in some quarters that the gradual increase is due to the well turning to crude as the peak of the gas pressure is pulled off.

Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, rotary test is drilling in the Dakotas at 2,151 feet.

In the north end of the Turner Valley, Imperial Oil. Ltd.'s Millarville No. 1, SW. Section 26-20-3w5, is building camp and hauling derrick material.

In the Jumping Pound district west of Calgary, Imperial-Bow River No. 1, LSD 15, Section 12-25-5w5, is again drilling, after a long delay due to casing trouble. The drill is working at 5,115 feet carrying the 6-inch casing which is down to 5,072 feet.

In the southern foothills 40 miles west of Nanton, Imperial-Rice Creek No. 1, Section 4-14-2w5, has been abandoned at 5,747 feet. At this depth it was the deepest well in Canada, the next in depth being the Empire Natural Gas Co.'s test in the Fraser Valley, British Columbia, which is shut down at 5,743 feet. At 5,747 feet the Imperial-Rice Creek had not yet got out of the sedimentary formation; the Imperial geologists were uncertain as to the exact formation penetrated, but it was decided that deeper drilling in that particular locality was not justified by the commercial possibilities. The rig and a good deal of the casing will be salvaged when the roads permit hauling.

Bow Island Field

In the Bow Island Field, Imperial-Burdett No 1, Section 8-11-11w5, abandoned at 3,950 feet has been plugged, and the drilling outfit is being removed.

In the Ribstone district, East-Central Alberta, Imperial-Ribstone No. 1, Section 5-45-1w4, is drilling in a limestone formation at 3,270 feet. Reports that a further oil showing had been encountered in this well are denied by Imperial Oil, Ltd. officials. A similar report, circulated regarding the Imperial-Erickson Coulee No. 1, LSD 13, Section 8-1-12w4, is also denied. The Erickson Coulee test has a fishing job at 3,570 feet, with a string of tools lost in the hole.

In the Border Field, Devenish Petroleum's LSD 5, Section 27-5-14w4, is drilling close to the Dakotas at 2,500 feet, running double tower and carrying down the 10-inch casing behind the drill. It is reported that American interests are arranging to test a portion of the Devenish holdings in the Lucky Strike area on a royalty basis.

In Southwestern Alberta and Southeastern British Columbia, S. C. Ferdig has a contract with the British Columbia Oil & Coal Development Co. of Vancouver, B. C. for a deep test on the Kintla Lake structure, north of Glacier Park. This structure is thought to be an extension of the old Oil City Field in Southeastern Alberta, where Alberta's first oil boom was

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Substantial Increase at Seal Beach

10 or 15 Additional Producers May Be Completed Within Three Weeks. Potential Peak Estimated 100,000 Barrels

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 23.—Reflecting the completion of six new wells during the past two weeks and the return to production of several others which had been off due to mechanical trouble, daily production in the Seal Beach Field registered a substantial increase during this period, but this is apparently only a starter as some 10 or 15 additional producers are expected to be finished during the next 21 days. Their effect on production, of course, depends to a large extent on the ability of the respective operators to market or provide adequate storage for this additional oil. While on this subject it might be of interest to call attention to the present attitude of practically all of the major pipe line companies and the possible effect which a continuance of this policy will have on future production.

Only five or six purchase contracts have been accepted by pipe line companies up to the present and in each case this has resulted from an agreement or moral responsibility assumed previous to the opening up of the town lot area at Seal Beach. In other words, independent producers, operating in that area now being intensely developed, will be unable to dispose of their future production unless the present policy of the major refiners is changed or modified. One can appreciate the effect which this condition will exert on the future output, particularly with respect to peak production. It is generally agreed that the peak production at Seal Beach would approximate 100,000 bbls. daily provided producers were able to dispose of their maximum output but, due to the reluctance and absolute refusal of pipe line companies to accept contract oil, no fairly accurate estimate can be determined as the marketing concerns may later modify their present policy. With the pipe lines of the California Eastern, California Petroleum, Richfield, General Petroleum and Union already extended into the town lot area or in course of construction, producers may be afforded a little relief, although up to the present these companies have consistently refused to obligate themselves to handle anything but their own production The Associated and Standard have not yet made any move to extend their respective lines into the town lot area but will undoubtedly do so after the present crisis has passed and some idea can be gained as to what the future holds in store.

Drilling at Seal Beach

A detailed check of total field development in the Seal Beach Field at present shows that there are 49 wells below the 4,000-foot level, about half of which are below 4,300 feet with a probable completion depth at approximately 4,750 feet. Thirty-four additional holes have reached a depth of between 3,000 and 4,000 feet, while the bit in 20 additional wells is being pushed ahead between 2,000 and 3,000 feet. Fifteen more range between spud and 2,000 feet but this number should be increased within 10 days as 33 additional rigs are either in course of construction or being rigged up.

The Shell, which company pioneered the Seal Beach Field but failed to secure production due to the fact that its tests were edge wells, is making preparations to drill a wildcat just east of the Associated's Hellman lease in the extreme eastern part of the field. The company put in rig foundation several months ago in the western part of this property but drilling did not get under way due to a faulty surveying job when the tract was originally laid out several years ago. The dispute over the boundary line between the Hellman property and the Alamitos Land & Water property has been satisfactorily adjusted and the Shell is now free to proceed with its contemplated test. The Shell's new wildcat will be due east of the Seal Beach Field and west of the General Petroleum's No. 1 Lomita, a wildcat at Sunset Beach, which so far has failed to find anything of particular importance down to 5,070 feet.

The Pacific Electric Railway recently transferred the mineral rights on the company's right of way at Naples in the southern part of the Alamitos Heights area and, while the electorate of Long Beach recently decreed that no drilling would be permitted south of these tracks, it begins to look as though the railway company will contest the interpretation of the City Attorney, who has held that the drilling restrictions include the Pacific Electric's right of way as well as all of the property to the south. The action of the Pacific Electric Railway, which is a subsidiary of the Southern Pacific Railroad, is interesting as part of the land in question should be productive.

Completed During Week

The Pan American, which is by far the largest single operator in the town lot area at present, successfully finished two new producers on its Naples lease during the week. The Pan American now has five producing wells in this area and is producing approximately 11,500 bbls. daily. Several additional wells are rapidly nearing completion depths and should be finished in the very near future. On the Bryant property the company has two potential producers which should pick up the pay within a day or two and these wells will probably be followed into production by No. 1 Parr, No. 1 Kellas, No 1 Marquis and No. 1 Naples in the order named if mechanical trouble does not develop. The company's two new wells finished during the week were No. 2 Naples, which came in flowing 2,250 bbls. of clean 25.1 gravity oil, and No. 4 Naples, which started off doing 2,500 bbls. of exceptionally clean 26.4 gravity oil. The former was drilled to 4,732 feet, while the latter was brought in from 4,736 feet, both holes being finished with 8¼-inch oil strings.

The Marland Oil Co., discoverer of the Seal Beach Field, finished one new well and recompleted another which has developed water trouble shortly after completion last month. The latter was No. 10 Bixby, which was redrilled and deepened from 4,330 feet to 4,490 feet, from which depth it was recompleted flowing 1,925 bbls. of exceptionally clean 24.5 gravity oil daily. It is flowing through a three-fourths inch bean under a pressure of 200 pounds on the tubing and 500 pounds on the casing. The company's new well was No. 13 Bixby, drilled to 4,450 feet and finished with a 4½-inch perforated liner. Flowing through a one half inch bean under a pressure of 480 pounds, it tanked 300 bbls of clean 24.2 gravity oil during the first full 24-hour test. The Associated recompleted two wells on its Bryant lease in the eastern part of the field and both incidentally registered a larger production than that attained upon the original completion last month. No. 2, which made an initial flow during the latter part of March of 920 bbls. from 4,380 feet, was recompleted during the early part of the current week, after being redrilled and deepened to 4,490 feet, from which depth it was returned to production flowing 1,750 bbls. of clean 24.1 gravity oil daily. No. 3 Bryant, which was also originally finished later in March, was returned to production a few days ago flowing 950 bbls. of exceptionally clean 24.3 gravity oil daily. This well was redrilled and deepened from 4,387 feet to 4,485 feet. The Associated has several additional potential producers on the Bryant and Hellman properties which should be finished within 30 days.

Drilling Projects

A detailed check of the various drilling projects under way in the town lot section reveals that completions from now

(Continued on Page 145)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Smith Pet. Co., No. 1 Johnson, Hawthorne	17- 3-14	6,215	testing
General Pet., No. 1 Smith, Potrero	35- 2-14	4,502	dismantling
General Pet., No. 1 Guiberson, Potrero	35- 2-14	Rig	wait. devel.
Calif. Eastern, No. 1 Smith, Potrero	35- 2-14	5,282	abandoned
Calif. Eastern, No. 1 Cypress, Potrero	27- 2-14	1,560	hd. sd. drilling
Associated, No. 1 Cypress, Potrero	34- 2-14	4,450	cmtd. oil sand
Getty, Geo. F., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Getty, Paul, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
California Pet., No. 1 Sutton, Potrero	34- 2-14	Rig	wait. devel.
California Pet., No. 1 Toma, Potrero	35- 2-14	Rig	abandoning
California Pet., No. 1 Armour, Potrero	35- 2-14	Rig	wait. devel.
Cole, Fred E., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Pill Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Walker, Fred, No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Potrero Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	abandoning
Dominguez Extension, No. 1 Compton, Dominguez	22- 3-13	5,530	set 6¼-inch
Getty, Geo. F., No. 1 Tubbs, Rivera	.....	Mtl.	building rig
Circle Oil Co., No. 1 Pomeroy, Manchester	22- 3-14	3,740	hd. sd. drilling
Standard, No. 1 University, San Fernando	15- 2-15	5,950	hd. sd. drilling
Shell, No. 1 Mission, San Fernando	4- 2-15	Mtl.	building rig
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,870	redrilling
Petroleum Sec., No. 1 Weston, El Segundo	27- 4-14	2,110	hd. sd. drilling
Calif. Pet. Dev., No. 1 Spitz, Capistrano	2- 8- 8	4,000	suspended
E. J. Robinson, No. 1 Carr, San Juan Capistrano	13- 8- 8	2,414	suspended
Cardiff Oil Co., No. 1 Oceanside, San Diego	24-13- 4	2,790	sd. sh. drilling
Oceanside Oil Co., No. 1 Pacific, San Diego	23-11- 5	3,210	suspended
Petroleum Sec., No. 1 DeBaker, Bandini	18- 2-12	5,860	hd. sd. drilling
General Pet., No. 1 Lomita, Sunset Beach	19- 5-11	5,070	hd. sd. drilling
Fisher & Co., No. 1 Rinz, Saugus	27- 5-16	Rig	rigging up
Reliance Home Inv. Co., No. 1 Leuzinger, Los Ang.	8- 3-14	Rig	rigging up
Shell, No. 1 Allec, Placentia	31- 3- 9	Mtl.	building rig

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,043	suspended
Bolsa Chica, Well No. 1 Kettleman Hills	30-23-19	2,365	suspended
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	3,165	fishing
General Pet., No. 1 Dome, Kettleman Hills	26-22-18	409	sd. drilling
C. C. M. O., No. 1 McGlashan, Kettleman Hills	17-24-19	2,302	sd. sh. drilling
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,195	bl. sh. drilling
Ahlburg Gas Co., Well No. 1, Kettleman Hills	7-23-22	Rig	standing
Milham Explth., No. 1 Kettleman, Kings Co.	2-22-17	1,334	set 15½-inch
Shell, No. 2 Berlywood, Moorpark	32- 3-20	2,808	hd. sd. drilling
California Pet., No. 1 Camarillo, Ventura Co.	21- 2-20	2,450	hd. sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	6,035	D. P. stuck
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	3,660	br. sh. drilling
Continental Oil Co., No. 2 Newhall, Ventura Co.	36- 4-18	395	sd. drilling
Continental Oil Co., No. 1 Burnham, Ventura Co.	22- 5-18	1,858	sd. drilling
Milham Explth., No. 1 Sexton, Ventura Co.	19- 3-22	7,100	fishing
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	4,950	reaming
Standard, No. 1 Montalvo, Ventura Co.	17- 2-22	5,055	land 6¼-inch
Petroleum Sec., No. 1 Diablo, Ventura Co.	4- 4-18	1,650	hd. sd. drilling
Rio Grande, No. 1 Canet, Ventura Co.	9- 3-23	4,962	pipe bad
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	2,560	sd. sh. drilling
Star Petroleum, No. 1 Canet, Ventura Co.	13- 3-23	3,440	land 11-inch
Richfield, No. 1 Janes, Ventura Co.	16- 5-18	1,658	sd. drilling
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,495	sd. drilling
Superior, No. 1 Pena, Ventura Co.	18- 4-17	3,528	sd. sh. drilling
Milham Explth., No. 1 Buttonwillow, Kern Co.	8-28-23	4,640	sd. sh. drilling
Milham Explth., No. 3 Buttonwillow, Kern Co.	7-29-24	205	sd. drilling
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	4,000	land 10-inch
C. C. M. O., No. 1 Quinn, Delano	23-25-27	1,342	bl. sh. drilling
Muroc Dev. Co., No. 1 Rosedale, Kern Co.	13-29-26	505	sd. drilling
Standard, No. 1 Bacon, Kern Co.	27-28-20	Rig	rigging up
Marland, No. 1 Jacalitos, Fresno Co.	22-21-15	4,022	hd. sd. drilling
Petroleum Sec., No. 1 Aniotz, Monterey Co.	2-22- 9	2,031	hd. sd. drilling
Petroleum Sec., No. 1 Sandy, Monterey Co.	18-27-13	.....	location
Birch Oil Co., No. 1 Porterville, Tulare Co.	13-20-26	Rig	rigging up
Ozena, No. 1 Allensworth, Tulare Co.	26-24-24	2,300	bl. sh. drilling
Grafford, C. W., Well No. 1, Tulare Co.	26-24-24	2,525	fishing
Pichfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	305	gr. sd. drilling
Shell, No. 1 Cowell, San Mateo Co.	16- 5- 5	2,962	hd. sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	4,960	hd. sd. drilling
Talbot Oil Co., Well No. 1, Alameda Co.	15- 3- 3	602	sd. sh. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	299,170	42,739	250,391	35,770	2,289,255	4,366,109
Fuel oil	276,678	39,525	473,224	67,603	2,964,021	1,912,865
Diesel and gas oil	153,634	21,948	.....	.....	1,173,295	709,680
Gasoline	254,896	36,414	76,211	10,887	2,136,875	1,655,456
Tops	.....	.....	.....	.....	.....	149,906
Coastwise—						
Crude oil	339,431	48,490	555,607	79,372	7,607,628	7,311,109
Fuel oil	236,569	33,796	220,589	31,513	3,718,638	2,694,442
Diesel and gas oil	8,494	1,213	6,404	915	67,969	98,275
Gasoline	249,838	35,691	119,904	17,129	2,372,617	2,270,197
Kerosene	2,498	357	.....	.....	43,103	47,538
Tops	.....	.....	.....	.....	.....	139,215
Exports—						
Crude oil	108,637	15,520	106,509	15,216	942,153	641,498
Fuel oil	575,989	82,284	422,429	60,347	7,527,686	4,647,629
Diesel and gas oil	67,497	9,642	.....	.....	293,722	123,266
Gasoline	65,941	9,420	45,029	6,433	614,792	1,426,249
Tops	.....	.....	.....	.....	72,371	.....
Kerosene	77,686	11,098	51,097	7,299	702,126	812,203

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	251,458	486,570
Gasoline	.....	.....	151,269	21,610	811,430	472,670
Tops	.....	.....	.....	.....	.....	73,698
Lubricants	.....	.....	.....	.....	111,970	104,088
Coastwise—						
Fuel oil	46,587	6,655	121,758	17,394	1,737,034	1,502,074
Diesel and gas oil	.....	.....	.....	.....	134,308	.....
Gasoline	48,770	6,967	97,930	13,990	1,353,720	1,173,993
Kerosene	.....	.....	.....	.....	30,674	118,576
Exports—						
Fuel oil	.....	.....	127,460	18,209	497,227	605,183
Gasoline	.....	.....	64,148	9,164	1,087,635	738,661
Kerosene	95,781	13,540	.....	.....	452,695	437,742
Lubricants	.....	.....	.....	.....	9,120	18,051

Stratigraphic Position of Big Lime

Section From Culberson to Shackelford County, Showing Key Bed Used in Subsurface Work in West Texas

By Everett C. Edwards*
Geologist for the Exploration Company of Texas, San Angelo, Tex.

Rapid oil developments in West Texas make necessary an inter-district correlation for the petroleum geologist.

Geologically West Texas is a structural geosyncline, and during Permian times it was a basin of deposition.

The Permian sea invaded from the southwest. Clastic sediments were derived from ancient Llanoria, from the Wichita Mountains, the igneous ridges of the Panhandle and from the Ancestral Mountains of New Mexico. This material formed a border of red clastic sediments around the landward portion of the Permian sea, which, when traced seaward in directions normal to the strand lines, grades into marine sediments, chiefly dolomitic limestones.

The latter constitute what is called the "Big Lime" series. The top of the Big Lime is the key bed used in subsurface work in West Texas. The upper part of the Big Lime is found to be of Double Mountain age, and may correlate with the Word formation of the Glass Mountain area, and the Delaware formation of the Trans-Pecos area. It is considerably higher stratigraphically than the Big Lime of the Panhandle district.

Following the deposition of the Big Lime, a closed or restricted basin developed; the result being that the upper Permian measures are composed chiefly of anhydrite and salt, deposited from super-saline water.

Introduction

The economic importance of West Texas needs no introduction to the oil industry.

Structurally, West Texas is a large geosyncline. Detailed studies of the stratigraphy of this area have been made along the truncated outcrops of the Permian measures around the periphery of this geosyncline. These studies have been made public in state and Federal bulletins, but thus far very little has been published about the stratigraphy of the Permian basin proper, that extensive area where oil and potash are found, and where the Permian is concealed by Mesozoic and later systems.

The area described in this paper lies between 100 degrees and 150 degrees West Longitude; south of the Panhandle, and north of the Marathon Mountains.

The position of the Big Lime in the stratigraphic column is important because it is a blanket deposit underlying most of West Texas, and is the key bed most frequently used for subsurface control. Because of its wide areal distribution, it gives promise of serving as the key formation common to all of the separated districts.

General Structure

As mentioned in the introduction, the structure of West Texas is that of a geosyncline. The eastern margin is defined by the Bend Arch. The southern margin may be considered as a line extending from the Marathon Mountains to the Central Mineral Region, or Llano Uplift. The western side is limited by the mountains of southeastern New Mexico, and the Delaware and the Apache Mountains of Texas. The granite ridges of the Panhandle district, and the ancestral Rocky Mountains of New Mexico may be taken as the northern limit. The area within these limits appears to be one big geosyncline comprising a geologic province.

Basin of Deposition

This area in West Texas, which is at present a structural geosyncline, during the Permian period was a basin of deposition. This fact is important because the stratigraphic sections in different parts of the basin are definitely related to such factors as Permian land masses, strand lines, and marine areas. The ancient land, Llanoria, which lay south and east of the area under discussion, and which was a land mass from Pre-Cambrian until Cretaceous times, contributed the greater part of the clastic material found in the Permian series of West Texas.

CROSS SECTION OF WEST TEXAS SHOWN IN FOUR-PAGE MAP

A four-page geologic cross section of West Texas from Culberson to Shackelford County is published in this issue on Pages 60, 61, 64 and 65. Page 60 shows the left-hand side of this cross section; 61 the next part to the right; then 64 next and page 65 contains the right hand section of the cross section. By pasting these pages together in the order named, a complete cross section is obtained.

East Side of the Basin

Along the east side of the basin, immediately west of the Bend Arch, the truncated outcrops of the Permian strata have been studied and described. They have been subdivided into three formations: The Wichita-Albany, the Clear Fork, and the Double Mountain.

The Wichita-Albany formation is the lowest. It is typically a marine deposit, consisting chiefly of dolomitic limestone and blue shale, with some sandstone, principally at the base. It represents the farthest invasion of the Permian sea over the area previously occupied by the Pennsylvania. There is no marked structural or depositional break between the Pennsylvania and Permian. The only noticeable contrast is that the Cisco contains considerable red sand and red shale, indicating transportation and deposition of clastic material from adjacent land masses. In the succeeding Wichita-Albany epoch, the adjacent land masses must have had very little relief, because the sediments are practically all of the marine type. The Wichita-Albany formation is about 1,200 feet thick.

Overlying the Wichita-Albany is the Clear Fork, which is a mixed continental and marine deposit. Except for a small amount of dolomite and blue shale, the Clear Fork outcrop consists entirely of red sandstone and red shale. It is 900 to 1,000 feet thick.

Above the Clear Fork is the Double Mountain formation. At the outcrop this consists of red sandstone, red shale and gypsum. The entire thickness of the Double Mountain group cannot be measured along the outcrop, because it dips constantly westward, passing under the Mesozoic and later systems. Its total thickness can only be obtained from logs of wells drilled in the center of the basin. From this source of information, its maximum thickness may be given as more than 4,000 feet. There it is composed of red sandstone and shale, anhydrite, salt, polyhalite, and dolomitic limestone.

Position of Big Lime

From their outcrops, these formations have been traced underground into the basin by comparison of the logs and samples of the intervening wells. The lithology at the outcrop is radically different from the lithology as logged in the wells. The one exception to this is the Wichita-Albany formation, which preserves a marine facies throughout its entire extent, as represented in this area.

Although the Clear Fork consists almost entirely of red clastic material on the truncated outcrop, it has graded laterally into a dolomitic limestone in the basin proper. This is due to the fact that the clastic material has thinned out and disappeared in a seaward direction, and its place in the stratigraphic column has been taken by typical marine deposits.

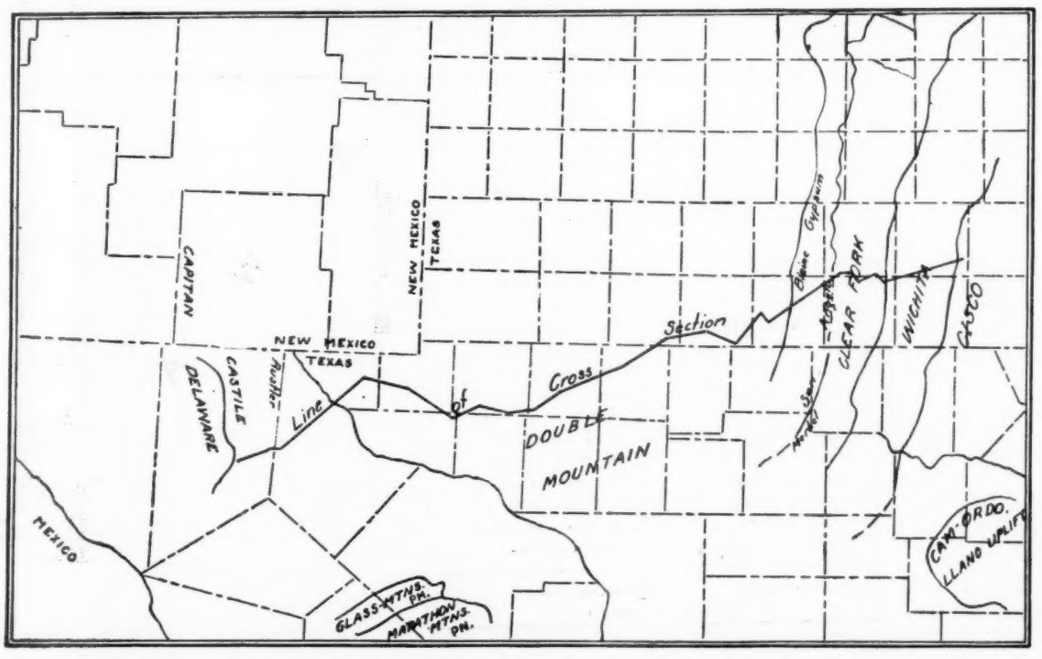
During the lower Double Mountain epoch the same processes of disposition continued which were operative during the Clear Forks. The red beds of the Double Mountain, as high up as the Blaine gypsum formation, have graded out to the west, their place being taken by marine calcareous deposits which form the Big Lime.

During the Clear Fork and the lower Double Mountain epochs, the adjacent land mass to the east was evidently rising intermittently, each new uplift causing a flood of red clastic material to be thrown into the Permian sea and along the shore. These occasional uplifts resulted in the deposition of extensive wedges of clastic material, which gradually thin out and disappear toward the west, far out in the basin. They are separated from each other by deposits of dolomitic lime and blue shale, which conversely wedge out and disappear toward the east. The wedges of red beds are very helpful in unravelling the correlation of the east side of the basin. They are easily detected and are usually logged by the driller. Their alignment in the different wells can be used as a gauge to show the correlation and rate of dip of those formations which are less recognizable.

Three definite wedges of red beds can be named. One occurs at the base of the Clear Fork, one in the middle of the Clear Fork, and one at the base of the Double Mountain formation; the latter occupying the stratigraphic position of the San Angelo conglomerate of Texas and the Duncan sandstone of Oklahoma. A cross section, if drawn along a line parallel to the strand lines, would illustrate that the lithology is practically the same throughout the entire distance.

The top of the Big Lime, when projected to the outcrop, is found to be at the base of the Blaine gypsum formation, and is about 700 feet above the Merkel dolomite. Therefore, it can be placed defin-

(Continued on Page 139)

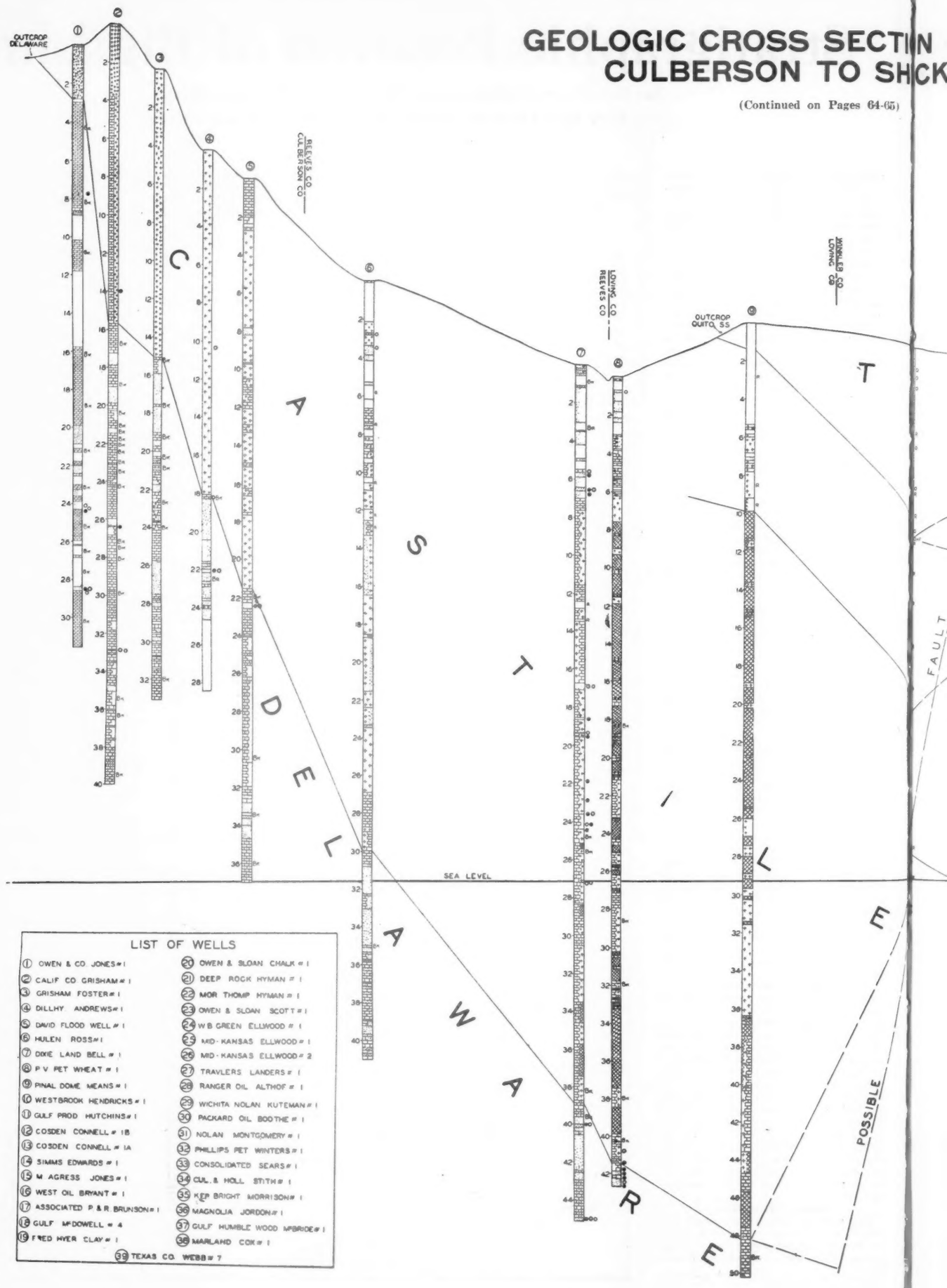


Map of West Texas showing formation boundaries and line of cross section as detailed on pages 60, 61, 64 and 65.

*Read before the American Association of Petroleum Geologists at the Tulsa meeting, March 26, 1927. Printed in The Oil and Gas Journal by special permission.

GEOLOGIC CROSS SECTION CULBERSON TO SHCK

(Continued on Pages 64-65)

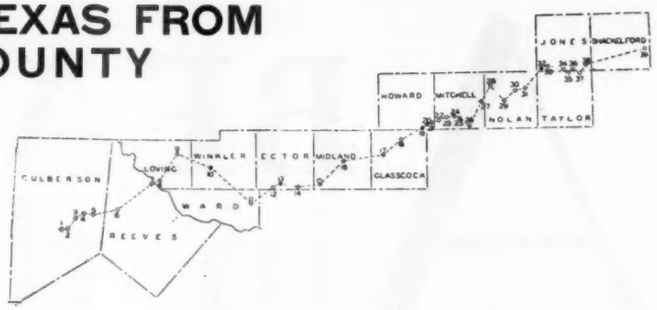


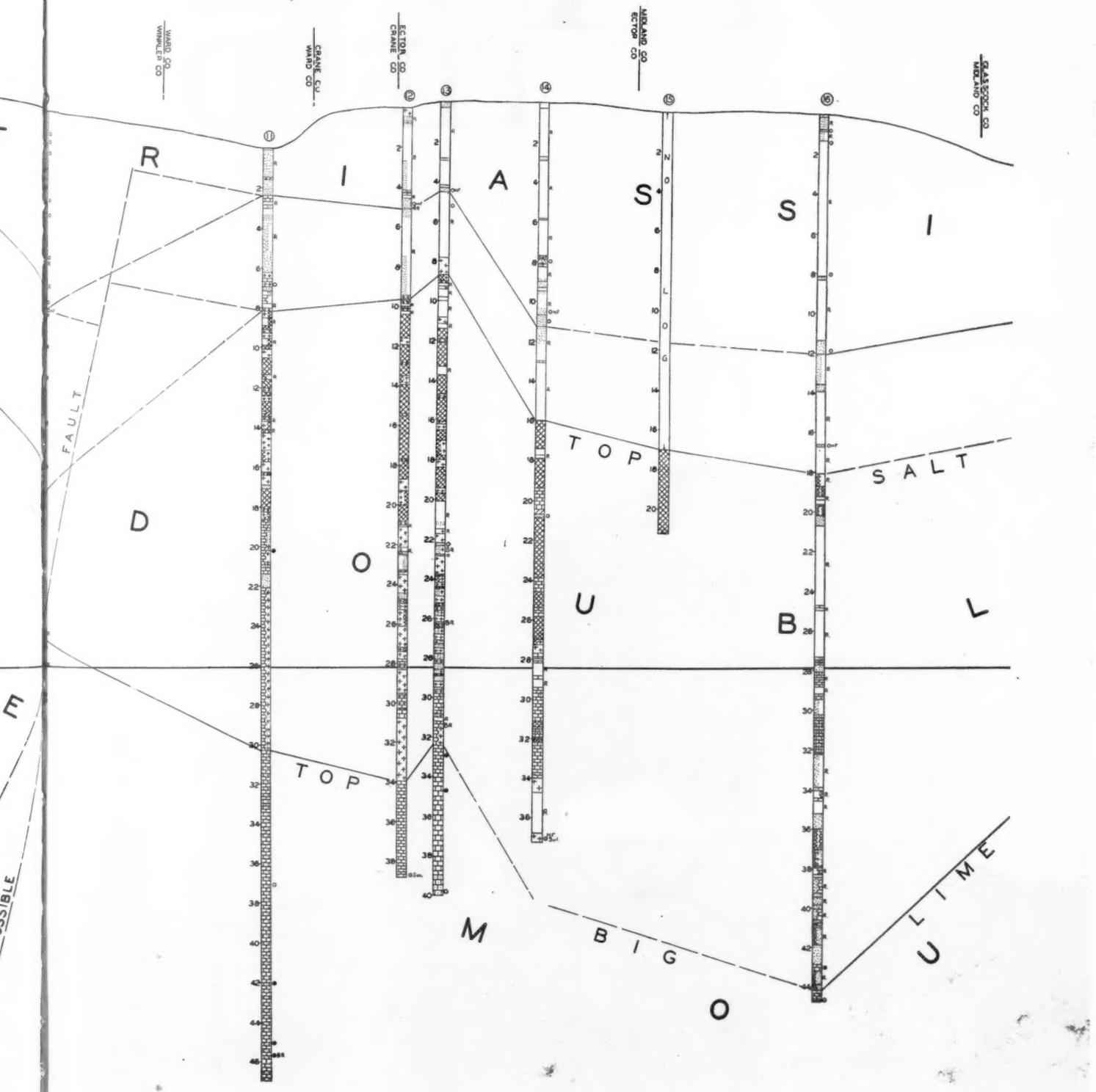
LIST OF WELLS

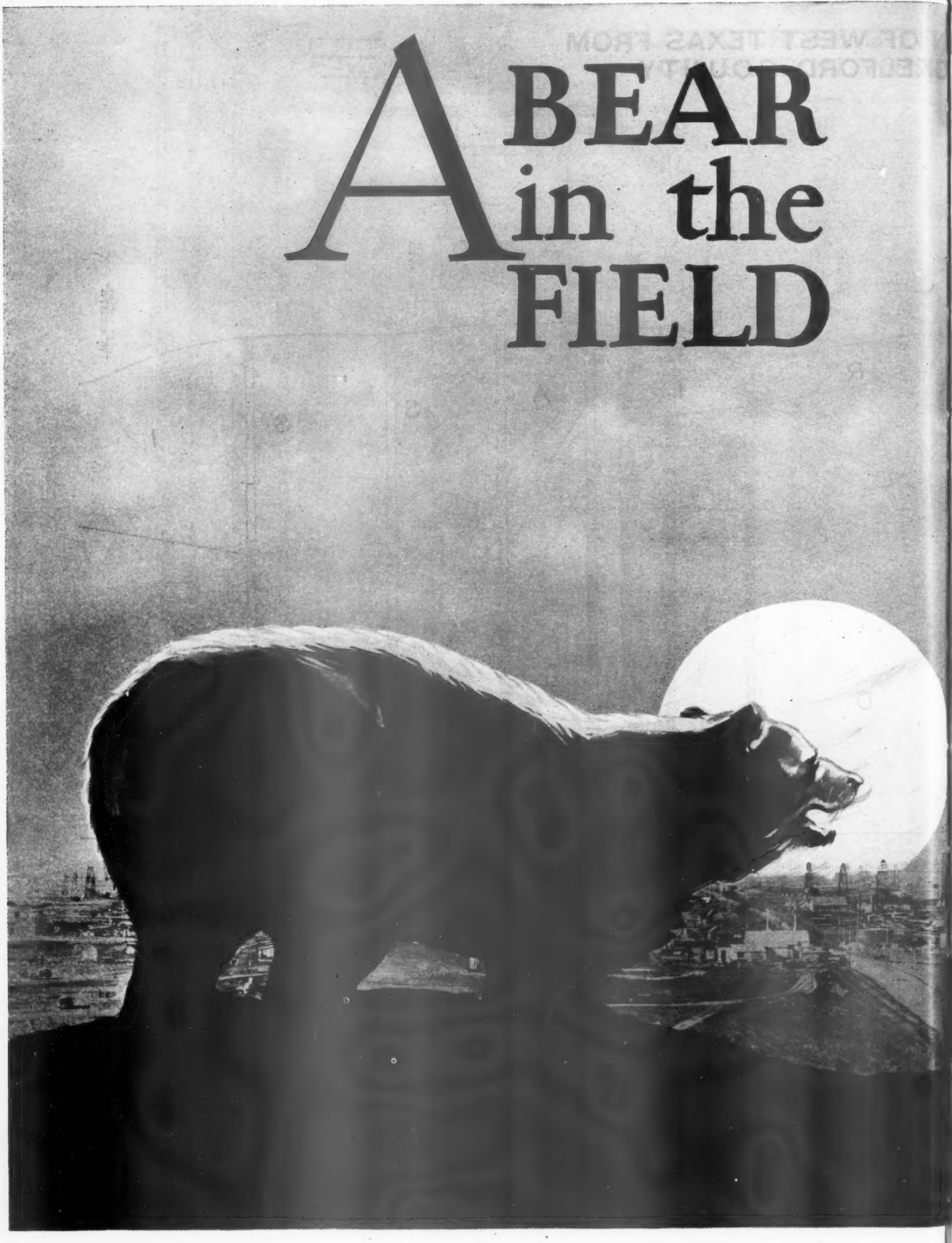
1. OWEN & CO. JONES # 1
2. CALIF CO. GRISHAM # 1
3. GRISHAM FOSTER # 1
4. DILLHY ANDREWS # 1
5. DAVID FLOOD WELL # 1
6. HULEN ROSS # 1
7. DIXIE LAND BELL # 1
8. P V PET WHEAT # 1
9. PINAL DOME MEANS # 1
10. WESTBROOK HENDRICKS # 1
11. GULF PROD HUTCHINS # 1
12. COSDEN CONNELL # 1B
13. COSDEN CONNELL # 1A
14. SIMMS EDWARDS # 1
15. M AGRESS JONES # 1
16. WEST OIL BRYANT # 1
17. ASSOCIATED P & R BRUNSON # 1
18. GULF MCDOWELL # 4
19. FRED HYER CLAY # 1
20. OWEN & SLOAN CHALK # 1
21. DEEP ROCK HYMAN # 1
22. MOR THOMP HYMAN # 1
23. OWEN & SLOAN SCOTT # 1
24. W B GREEN ELLWOOD # 1
25. MID-KANSAS ELLWOOD # 1
26. MID-KANSAS ELLWOOD # 2
27. TRAVLERS LANDERS # 1
28. RANGER OIL ALTHOF # 1
29. WICHITA NOLAN KUTEMAN # 1
30. PACKARD OIL BOOTHE # 1
31. NOLAN MONTGOMERY # 1
32. PHILLIPS PET WINTERS # 1
33. CONSOLIDATED SEARS # 1
34. CUL & HOLL STITH # 1
35. KEP BRIGHT MORRISON # 1
36. MAGNOLIA JORDON # 1
37. GULF HUMBLE WOOD MCBRIDE # 1
38. MARLAND COX # 1
39. TEXAS CO. WEBB # 7

CTION OF WEST TEXAS FROM SHACKELFORD COUNTY

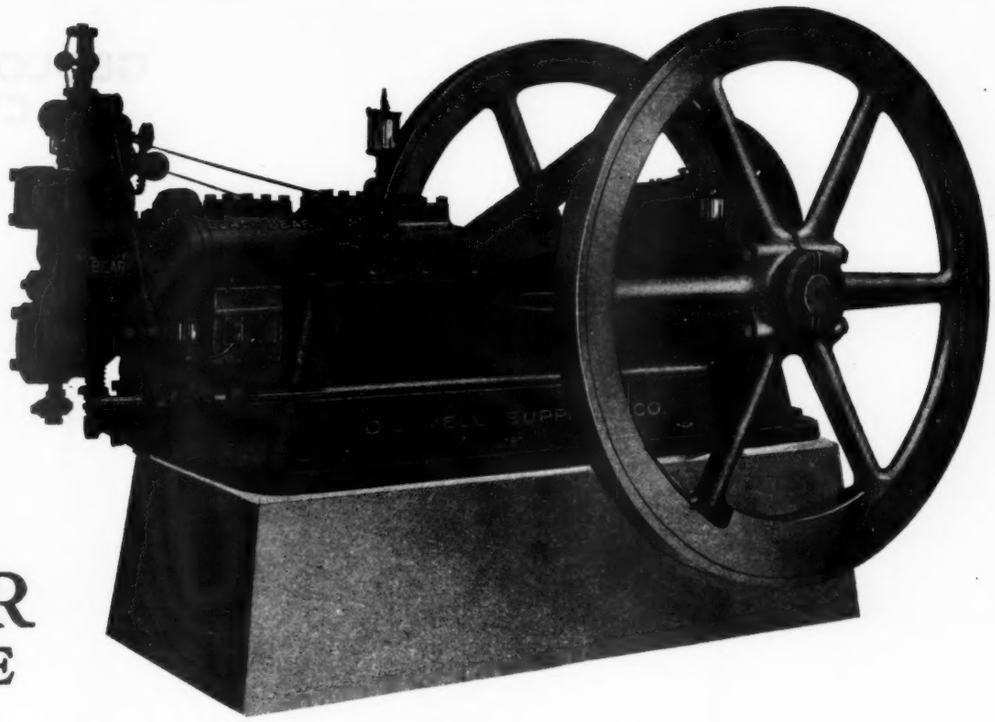
(34-05)






A BEAR in the FIELD

Here it is



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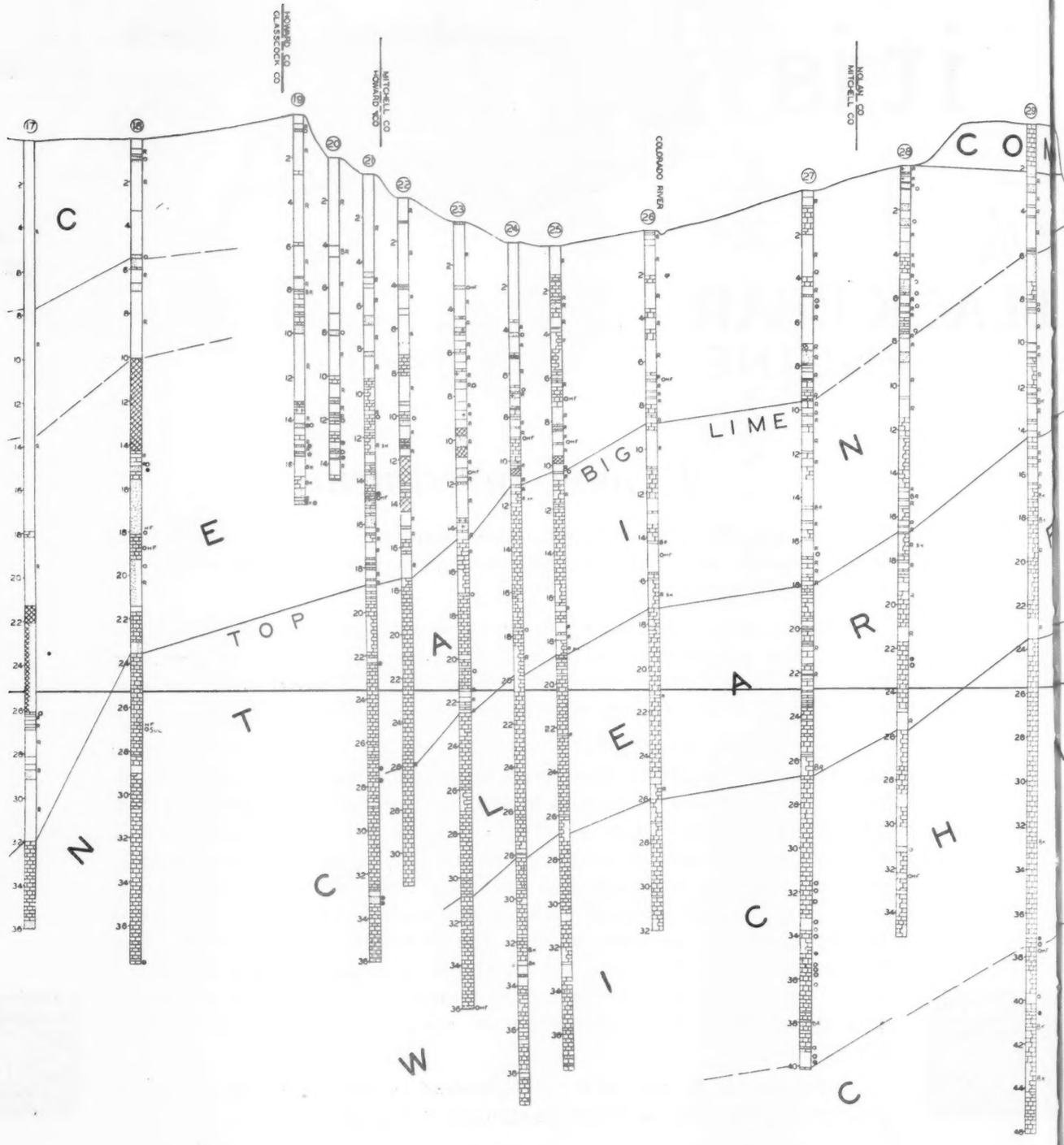
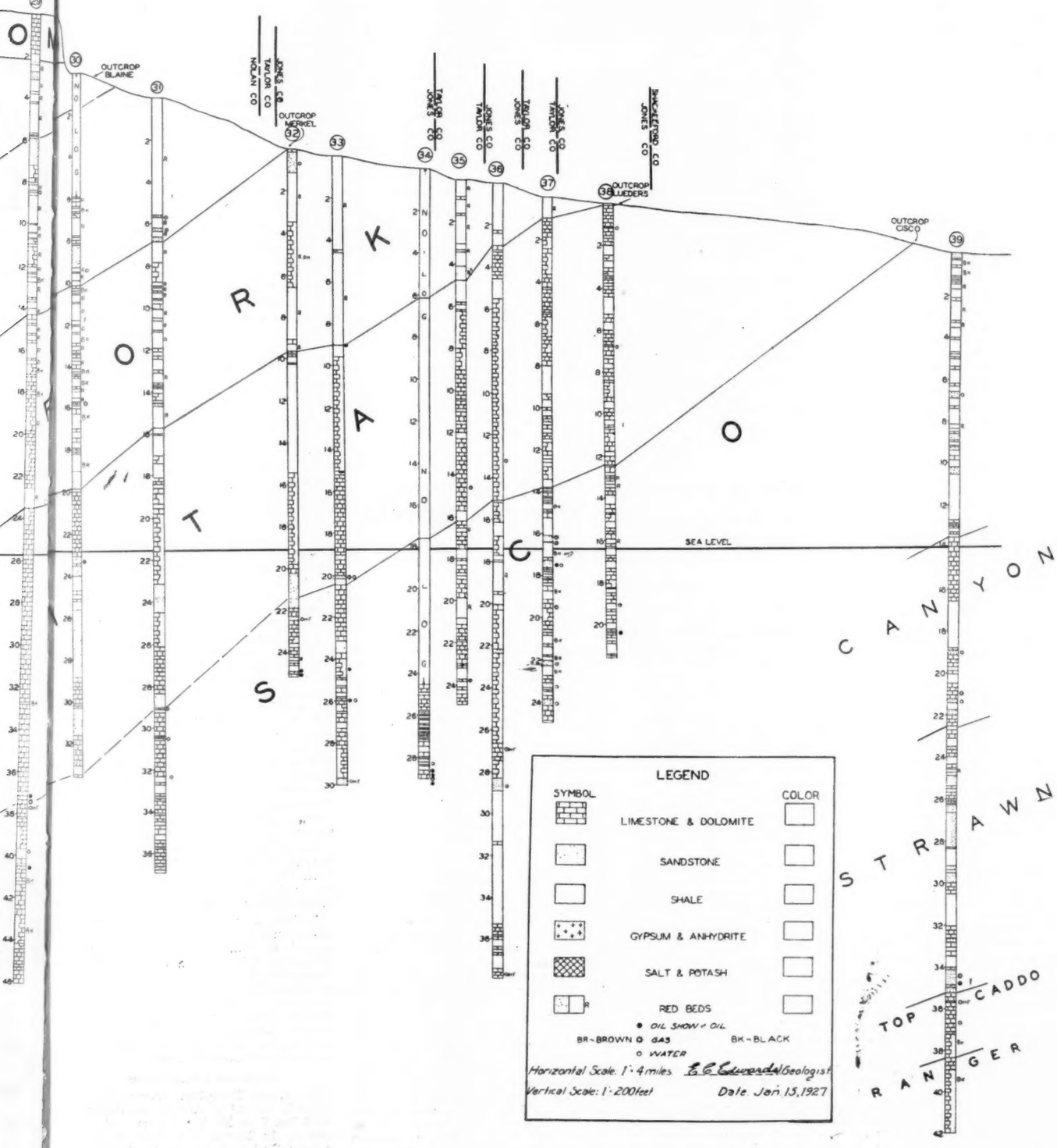
GEOLOGIC CROSS SECTI O
CULBERSON TO SH KE

(Continued from Pages 60-61)



ECTION OF WEST TEXAS FROM SHACKELFORD COUNTY



Hocking County Has 410 Bbl. Producer

Guernsey County Well Makes 280 Bbls. Ritchie County Producer Is West Virginia's Best for Year, 300 Bbls.

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Apr. 25.—Since the Eastern fields were last reviewed, more good wells were completed in all sections. The southeast Ohio fields had the greatest number, and one a near gusher.

The best producer completed during the week was the Pure Oil Co.'s No. 4 on the L. A. Leslie farm, in the southwest quarter of Section 18, Green Township, Hocking County. It produced 410 bbls. the first 24 hours after completed and shot in the Clinton sand. Wells of so high an initial production are few and far between in the Eastern fields.

Guernsey County

In the northeast quarter of Section 6, Jackson Township, Guernsey County, the Wiser Oil Co. has completed and shot in the Niagara lime a test on the National Coal Co.'s property. It produced 280 bbls. the first 24 hours and is the best producer completed in a number of weeks. In the northwest quarter of the same section, the Ohio Fuel Supply Co. has completed in the same formation No. 5 on the J. R. Fulton farm. It is a natural producer and placed 101 bbls. to its credit the first 24 hours. In the southeast quarter of Section 6, Jackson Township, Guernsey County, the Ohio Fuel Supply Co. has completed a test on the Mary M. Fulton farm, good for 35 bbls. a day.

Licking County

In the Berea grit development in Fallsbury Township, Section 21, Licking County, the Leonard Oil & Gas Co. has completed in the Berea grit No. 13 on the Myers heirs' farm. It produced 18 bbls. the first 24 hours after shot. In Section 24, same township, Shaffer & Co. completed No. 10 on the James Chaney farm. After shot in the Berea grit, it produced 12 bbls. the first 24 hours.

In the village of Perryton, Perry Township, Licking County, located in deep sand territory, Mead and others have completed and shot in the Clinton sand a test on the H. C. Gault farm. It produced 80 bbls. the first 24 hours. There will probably be no more wells started on this farm at the present time.

In Section 16, Hanover Township, Licking County, the Hope Refining & Construction Co. has completed a test on the A. D. Jones farm. It produced 46 bbls. the first 24 hours after shot. In Section 12, Pike Township, Coshocton County, the Leonard Oil & Gas Co. has a duster in all sands at a test on the Edward Young farm. In the same township, Section 24, Spindler, Donnan & Co. have the rig completed for No. 4 on the McKee farm.

In Jackson Township, Knox County, Whitmore property, trustees, are due in the sand at a test on the C. C. Conrad farm. In Section 2, Fallsbury Township, Licking County, the Arkansas Fuel Oil Co. is drilling in the sand at a test on the C. C. and Gladys L. Garrett farm.

In Section 2, Franklin Township, Licking County, Moore & Adams have completed in the Berea grit a test on the C. O. Neibarger farm, not good for more than 2 bbls. a day. In the southwest quarter of Section 4, Trimble Township, Athens County, the Glouster Oil & Gas Co. has completed in the same sand a second test on the J. V. Stackline farm. It is a duster.

On the Ohio side, in Section 22, Newton Township, Licking County, C. R. Settles and others have completed a test on the Luther Long farm. It is good for 5 bbls. a day in the Berea grit. In Lot 11, Franklin Township, Smith & Hazlett are drilling No. 5 on the D. E. Dustheimer farm.

In the northeast quarter of Section 9, Fallsbury Township, Licking County, Poulton Brothers, Brown and others have completed a test on the Al'en Cesena farm. It produced 12 bbls. the first 24 hours after completed and shot in the Berea grit.

The Gordon Oil Co. has completed No. 5 on the Frederick Thrush farm in the northwest quarter of Section 13, Washington Township, Hocking County. A very light show of oil was developed, and it will probably be abandoned.

Holmes County

In Section 15, Hardy Township, Holmes County, the Pure Oil Co.'s No. 3 on the Isaac F. Snyder farm produced 105 bb'.s. the first 24 hours after completed and shot in the Clinton sand. In Section 20, Harrison Township, Perry County, William Cline and others got a 90-bbl. producer when they drilled a test on the L. Bennett farm into the Clinton sand.

West Virginia's Biggest

For many months, West Virginia has been trailing along, completing nothing better than light wells, and not many of them. It now comes to the front with the best completion of the current year.

On McFarlan Creek, Murphy district, Ritchie County, Cochran & Hayes a few days ago drilled their second test on the McGregor heirs' farm into the Big Injun sand, and it is reported showing for 60 bbls. Since then it has been increasing its production, and is now producing 300 bbls. a day natural. This is the largest producer completed in West Virginia since the first of the year.

Mingo County

On the headquarters of Rock Branch Run of Breeden Creek, Harvey district, Mingo County, the Public Gas Corp. has drilled No. 10 on the Henry Closterman farm 10 feet deeper, to a depth of 1,712 feet, and increased its production to 65 bbls. a day. On Dry Ridge, Grant district, Ritchie County, Cochran & Hayes drilled their second test on the B. W. Fouty farm from the sa't sand to the Big Injun, and it produced 50 bbls. the ensuing 24 hours.

In Coal district, Harrison County, the Clarksburg Light & Heat Co. completed No. 225 on the S. D. Coe farm. It is a gasser in the 50-foot sand. In Union district, Tyler County, Dr. George T. Gale & Co. have a very light pumper in the Maxon sand at No. 13 on the Sarah D. Thistle farm. In Murphy district, Ritchie County, the Southern Oil Co.'s No. 8, on the A. E. Ryan farm, is a light pumper in the salt sand.

In Spencer district, Roane County, the Federal Oil & Gas Co. has completed No. 47 on the Roberts, Pell & Newman tract. It is a gasser in the second Cow Run sand, good for 500,000 feet. At the head waters of Goose Creek, Poca district, Kanawha County, the South Penn Oil Co. has the rig completed for a test on the Irvin Fields farm.

In Jefferson district, Pleasants County, Dotson & Rinehart have drilled down to the Big Injun sand old No. 1 on the John Rinard farm. It is a duster. In West Union district, Doddridge County, the Manufacturers Light & Heat Co.'s test, on the U. G. Summers farm, is dry in the Gordon sand and abandoned. In Church district, Wetzel County, the Pittsburgh & West Virginia Gas Co. has drilled deeper No. 3 on the O. J. Bartrug farm and is now estimated good for 50 bbls. a day.

Starting and Drilling Tests

In Lee district, Calhoun County, the Hope Natural Gas Co. is drilling a test on the G. G. Kelley farm. In Ravenwood district, Jackson County, E. L. Boehm is drilling on the Pearl Burch farm. In McClellan district, Doddridge County, the Little Five Oil Co. is building a rig on the T. C. Chipps farm. In Ten-Mile district, the Aizpurin Oil Co. is fishing at 2,610 feet on the Patrick Dolan farm. In Duval district, Lincoln County, the Cameron Oil & Gas Co. has a rig up on the Malinda Meadows farm.

In McComas district, Cabell county, the Commercial Gas Co. has started to drill a test on the J. D. Cutright farm. In Battells district Monongalia County, Tennant Brothers are due in the sand at a test on the Elvira Cole farm. In the same district, Bell Brothers are due on the J. M. Liming farm. In Reedy district, Roane County, the Heck Oil Co. is skidding the rig at a test on the A. D. Tallman farm. Martin Crowley has started to drill on the Mrs. E. D. Hainer farm, in Sheridan district, Calhoun County. In Clay district, Wetzel County, the Chesebrough Manufacturing Co. has started to drill on the Hattie Burley farm.

In Clay district, Wood County, Fetty & Anderson are due in the sand on the James Vaughn farm. The Great Elk Oil Co. has a rig up and two locations on the Samuel Bachman farm in Sheridan district, Calhoun County. In Murphy district, Ritchie County, Popes Brothers are building a rig on the J. H. Gamble farm. In the same district, Sylvester Wilson is fishing at 1,450 feet on the E. B. Nutter farm. In Grant district, the Hope Construction & Refining Co. fell into a fishing job soon after starting to drill on the Noah Jordan farm. The Hope Natural Gas Co. has a rig up on the Harvey Smith farm, in West Union district, Doddridge County. In Meade district, Upshur County, Taylor & Cavender have a rig up on the E. M. McCune farm.

The American Oil Development Co. has the rig completed and rigging up at a test on the C. S. Smith farm in Union district, Tyler County. In Jefferson district, Pleasants County, the Ambler Oil Co. is drilling another test on the Calvin Templeton farm.

In Paw Paw district, Marion County, the Owens Bottle & Machine Co. has started to drill the first test on the Lawrence Baker farm. On McFarland Creek, Murphy district, Ritchie County, the Hope Natural Gas Co. is spudding in a test on the Andrew Jordan farm. On Fish Creek, Liberty district, Marshall County, the Hope Construction & Refining Co. has the rig completed for No. 6 on the I. G. Logsdon farm.

Southwest Pennsylvania

In Greene Township, Greene County, Jesse L. Garard is through the Dunkard sand No. 7 on his No. 3 farm, and is a duster. In Morris Township, the Consumers Fuel Co.'s No. 4, on the James

(Continued on Page 139)

SHALLOWER SAGINAW SAND SHOWING; BEREA WELL MAKES 220 BBLS. INITIAL

By Whit
Staff Correspondent, Michigan Fields

SAGINAW, Mich., Apr. 25.—One of the most interesting wells of the week in the Saginaw Field is the No. 1 of the Western Drilling & Oil Corp., on the Mrs. Augusts Labuda property at Oak and Eddy Streets, within defined limits. This well, according to estimates of the company, reached the deeper Saginaw sand at approximately 2,290 feet, shallower than the Saginaw sand producer of the Sun Oil Co. on the Ferdinand Stelzreide farm, which is 1½ miles to the northwest. The Labuda well, after drilling through about 6 feet of hard cap rock, just scratched the Saginaw sand Saturday when the gas came forth with a roar that could be heard for a long distance, and with it a spray of oil. Being 33 feet shallower than the Stelzreide well means that the Labuda well is nearer the crest of the structure. With the coming of the heavy pressure of gas the control head was shut down.

"The well looks extremely good," said William Dannemiller, vice president and general manager of the company. "The strong flow of gas, in spite of the fact that we had hardly touched the Saginaw sand and that the control head is shut down just as much as possible, is very encouraging, and we feel that the well will be an extremely good one. We had just run into the ho'e and had barely started to run the tools when the well started gassing. We had a control head in place, and we shut this down at once, leaving the tools on the bottom, and will take precaution by installing tankage and moving back the drilling boiler and doing other preparatory work before drilling in. Nothing can be estimated as to the value of the well until drilled in, as the well on the Passolt property on Niagara Street that was drilled into the Saginaw sand also had a showing of oil, but was very light.

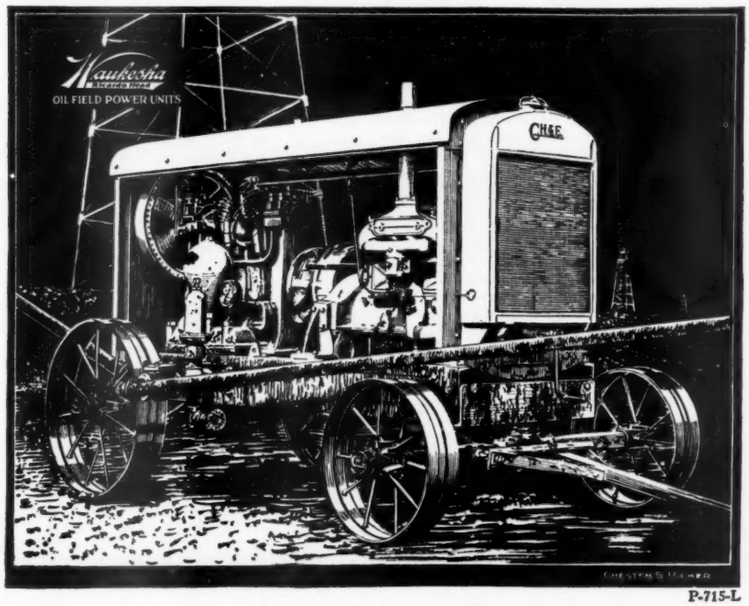
Four Tests Due

Still further information regarding the possibilities of the Saginaw sand is expected within the next week or so, as four other wells are expected to reach that formation. Part of the group of deep tests were inspired by the Sun Oil Co.'s good well. Scattered in several directions from the Sun's well, the new wells are expected to give oil men a much better idea of what to expect from the Saginaw formation. So far they have been exceedingly uncertain what the significance of the Saginaw sand wells may be. Some lean toward the belief that the Saginaw may be a spotty structure, with isolated pools of oil, rather than the fairly uniform nature of the Berea. But at the same time they are not overlooking the possibility that there may be many more wells as large as the Stelzreide, and perhaps even larger. If the theory that the Saginaw is spotty is found to be correct, some of the new wells may be dry holes, but in any event the additional number of wells will make much more information available.

The Sun Oil Co. has one of the wells that are likely to get the Saginaw sand during the week, which is its No. 2 on the Rabe farm, Section 11, Saginaw Township. Another is the Saginaw Prospecting Co.'s No. 1 Griebel; the Ohio Fuel Corp.'s No. 4 Fisher, Section 10; Bliss Petroleum Co.'s No. 2 Fred Engel farm, same section; and the Superior Oil Co.'s No. 1 on the Albert E. Pelkey property on Reed Street, west of Hermansau. The latter well may be delayed, due to leaky casing, and it is uncertain when this will be remedied. Numerous

(Continued on Page 135)

Waukesha Equipped C. H. & E. Triplex Pump at Tonkawa.



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Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

Clay County Gets 90 Bbls. Hourly Well

Another Near Celina Field Estimated 175 Bbls. Daily. Showing in Jett Sand 5 Miles Southeast of Ambrose Pool

By Whit
Staff Correspondent, Kentucky-Tennessee

HARTFORD, Ky., Apr. 25.—The finding of a showing of oil in the Jett sand in a wildcat south of Rough River, near the hamlet of Sunnydale, several miles southeast of the Ambrose Pool, in Ohio County, is the feature of the week in Kentucky. This well, while it is not large, looks as though it might make a commercial producer and is the first find to be made that far south in the county. To those familiar with the surroundings it would look as though the southern part of Ohio County will yet develop some nice oil pools. Oil has been found in Hopkins County, to the southwest, on about a 45-degree line northeast and southwest and this test which was made by Evansville parties may mean much in the future development of the south half of the county.

An extension, although slight, has been made to the northwest of the Ambrose Pool and with the producer on the Bartlett property to the south of the big wells the rich pool is gradually adding more productive territory. The Ambrose Pool at this time is the richest find in the Blue Grass State during the present season and some have dubbed it the "Seminole Pool of Kentucky."

The Ambrose Pool comes to the front during the week with a 175-bbl. producer. In Barren County, in the old Glasgow Field, some nice wells are being found, ranging from small producers to as high as 30 bbls., and Warren County's best find is 25 bbls. Eastern Kentucky failed to report even one completion, as operators in the Weir sand area prefer to await a higher price for crude before doing much drilling.

Tennessee made a record during the last report from the field by the bringing in of three wells from 200 bbls. up, according to reports from the Celina Field of Clay County where a large amount of drilling is being planned.

Week's Work

The summary of the week's work in the Kentucky-Tennessee fields show 21 completions, 17 producers, with an initial production of 1,101 bbls. and 4 dry holes. The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry
Barren	7	6	112	1
Ohio	4	3	270	1
Warren	3	3	48	0
Daviess	2	0	0	2
Allen	1	1	1	0
Kentucky	17	13	431	4
Tennessee, Clay Co.	4	4	670	0
Total	21	17	1,101	4
Last week	24	19	836	5
Difference	3	2	265	1

Western Kentucky

It looks very much as though a brand new territory was opening up in the tricounty oil field, comprising Hancock, Ohio and Daviess Counties, in the drilling in of the well south of Rough River, near the village of Sunnydale, in Ohio County. Doctor Lang and others of Evansville, who have a number of leases in wildcat territory, drilled the venture. Oil was found in the Jett sand, and while the showing indicates a small production, the flow of gas is greater than in the majority of the wells drilled in the county. The presence of oil demonstrates that the extent of the territory has not yet been covered. The new well is approximately 5 miles to the southeast from the Ambrose Pool opened several months ago by the Ohio Oil Co., where the big wells are now being developed with regularity. The Lang test is the only producer found south of Rough River and will eventually bring about the drilling of a number of tests in the hopes of finding a pool similar to the rich Ambrose producing area.

The Indiana & Illinois Oil Co., of Sullivan, Ind., has secured a block of leases in the vicinity of Suthards, in Hopkins County not far from Madisonville, the county seat. Surveyors and contractors expect to get started by the last of the month on the initial test.

Ohio County

Results are so pleasing in the wells in the Ambrose Pool, several miles north of Hartford and south around 10 miles from Whitesville, that development work is being maintained in an active way. The wells in the pool come in with good initial production and hold up far above expectations. Two completions are reported from this pool the past several days, with more than that due to reach pay sand within a few days. James C. Ellis brought in his No. 10 well, 125 feet from the north line, 230 feet from the west line, 1,650 feet from the south line and 2,130 feet from the east line of the John R. Weller 110 acres. There was a string of 583 feet of casing set, top of sand at 583 feet, bottom at 630 feet and drilled to a total depth of 631 feet and shot with 150 quarts, the initial production being 175 bbls. Nos. 11 and 12 are under way on the same lease.

An extension to the northwest was made to the Ambrose Pool when the Rex-Pyramid Oil Co. drilled in No. 1 well, 1,600 feet from the north line, 900 feet from the east line, 200 feet from the south line and 215 feet from the west line of the Frank Lake 50 acres and adjoining the W. Scott Ambrose 52 acres, where the same company has three good producers. In the Lake farm well a string of 550 feet of casing was set. Top of sand was found at 563 feet and bottom of sand at 627 feet, then drilled to a total depth of 629 feet and shot with 140 quarts. The initial production was 80 bbls.

In the King Pool, several miles north and a little west of the Ambrose Pool, Miller and Dameron, or the Creek Oil Co., drilled a test in the southwest corner of the A. Mickey farm, to the south of the producing wells on the Dave King 506-acre farm, which proved a dry hole in both the Jett and Barlow sands, the well being drilled to a total depth of 900 feet. This duster is over a couple of miles east of the Westerfield School, southeast of Laffoon and a couple of miles north of Bells Run village.

In the Midkiff Pool, midway between the Ambrose Pool and the Swope Pool, the White Plains Oil & Gas Co.'s No. 1 in the northwest corner of the C. A. Kelley 56 acres, adjoining the Howard heirs' 46-acre farm, set a string of 470 feet of casing, tapped the sand at 482 feet and found 8 feet of sand and drilled but 1 foot below the bottom of the sand at a total depth of 491 feet. The well was given a 60-quart shot, responding with an initial production of 15 bbls.

Daviess County

The Leeper Oil Co.'s test, on the Charles Conders 128 acres, adjoining the C. D. Veach farm, on the east where the same company has a light producer and in Daviess County, near the Ohio County line, proved to be a duster in all three sands, the Jett, Jackson and Barlow sands.

In the same county, Bert Thompson has a dry hole in a second attempt on the Frank Pulliam property.

Allen County

In the Gainesville Field in the northern part of Allen County, Riley Hunt has drilled in his No. 6 on his own farm getting a 1-bbl. producer at 310 feet. This is to the north of Scottsville, the county seat.

Barren County

In the Glasgow Field of Barren County, in the Lecta Pool to the southeast about 3 miles from Glasgow, is the largest development at the present time in the county. Hunt, Mitchell and others have four wells in Nos. 5, 6, 7 and 8 on the Vance Taylor farm, with initial production of 20, 15, 15, and 20 bbls. respectively. Nos. 9 and 10, same farm are drilling.

In the same pool, Sanson, Norris Brothers and others' No. 1, on the Walter Browning farm, produced 30 bbls. initially from a depth of 446 feet. No. 2 is drilling. Norris Brothers and Davis have a dry hole at a test on the Johnson farm.

In the Hall-Baker Pool, A. W. Zieler and others' No. 8 well, on the Dunter farm, topped the sand at 422 feet and bottom at 429 feet, getting a 12-bbl. initial producer.

Pedigo & Payne are drilling No. 2 on the Browning farm, in the Lecta Pool, and Breeding, Jones and others are drilling the same with No. 1 on the Mayfield farm.

The latest report from the test being made by the Lewis J. Emery interests on the Button farm, in the Button Pool near Lucas, in Barren County, is that it was drilling around 1,600 feet.

Cumberland County

In the Crocus Creek district of Cumberland County, near the Adair County line, Sam K. Baird's second well on the Elliott farm, was dry in the first Sunnybrook sand at 328 feet and shut down awaiting orders.

In the Goose Creek Field, Lee Thompson is still down around 1,150 feet and going to the depth of 1,191 feet, where expectations are that a pay will be found. This well is on the Paten Smith farm.

Warren County

Three completions are reported from the Bowling Green Field of Warren County. West of Bowling Green, the Wood Oil Co.'s No. 31 well, 2,000 feet from the north line and 1,000 from the west line of the C. G. Davenport 22 acres, was completed in the shallow sand at 455 feet, where its initial production amounted to 20 bbls.

In the Davenport Pool, Onsel Brothers and others' No. 15 well, 300 feet from the north line and 1,600 from the south line of the C. G. Davenport No. 2 farm west of Bowling Green, went to the deep sand at 1,050 feet, getting a 25-bbl. initial producer.

(Continued on Page 131)

CENTRAL OHIO AND INDIANA FIELDS ONLY CENTRAL WEST COMPLETIONS

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 23.—The old Lima Field of northwestern Ohio and the Illinois fields failed to report any completions during the week, the completed wells of the big Central West Field being confined to Central Ohio and Indiana.

In the Indiana territory, Monroe Township, Pike County, Indiana, A. B. Bement's No. 2 in the northeast corner of the Eldon Catt farm, in the southeast quarter of Section 13, showed an initial natural production of 20 bbls. Top of sand was at 1,341 feet and drilled by 2½ feet in the sand to a total depth of 1,343½ feet.

In Logan Township, same county, Charles Blosser and others' No. 2 in the southwest corner of the Walter Wilson farm, in the southwest quarter of Section 13, was a dry hole at 1,426 feet. In the same section, the Wiser Oil Co.'s No. 3 in the southwest corner of the Ern G. Wilson farm, struck top of sand at 1,342 feet and drilled only 9 feet in the sand, the well producing an initial of 30 bbls.

Southwestern Indiana is showing up much better than it has for a long period and with wells like the Wiser Oil Co. in Pike County, the A. B. Bement well in the same county and the good producers being found by Bell Brothers & Blosser on the Pat Nolan farm, in Reeves Township, Daviess County, there should be a large amount of new work started shortly as there is a vast improvement in weather conditions. Some new work is also starting in the old Trenton Rock area in the eastern-central portion of the Hoosier State.

The only report from Illinois was the abandoning by the Ohio Oil Co. and Dunn of their No. 26 on the James Lewis No. 1 farm, Section 5, Bridgeport Township, Lawrence County.

Central Ohio

In the Central Ohio gas belt an even dozen wells are reported completed, with five dry holes, seven gas wells, one new location staked out and seven new wells started drilling. Weather has improved to a large extent, although plenty of rain prevailed but the warm sun dries them up quickly.

In Ashland County, Sullivan Township, the Logan Gas Co. has an average sized gas producer at a test on the W. J. Harvinto farm, Section or Lot 81.

In Medina County, Lafayette Township, the Empire Gas & Fuel Co.'s second well in the southeast corner of the Charles R. Puchhas 90 acres, Lot 36, is a light gas well. M. C. and G. K. Rogers are drilling a test 300 feet from the south line and 1,485 feet from the east line of the Paul Rerts 50 acres, same township. Daugherty Brothers are drilling No. 2 well 300 feet from the south line and 1,010 feet from the east line of the Atlas J. House 50 acres, Lot 9. In Medina Township, the Empire Gas & Fuel Co. is drilling a test in the northeast corner of the Charles C. Weibur 104 acres, Lot 36.

The Wiser Oil Co. drilled in a duster in a test 600 feet from the south line and in the center of the east and west lines of the H. M. Howard 50 acres, Lot 64, Easton Township, Lorain County.

East Ohio Gas Co. is starting No. 4 well in the northwest corner of the J. E Miller 146 acres, Lot 15, Hardy Township, Holmes County. No. 3 on this farm is credited with an initial production of 35 bbls. from the Clinton sand. Empire Gas & Fuel Co. is drilling No. 1 well, 300 feet from the north line and 1,020 feet from the west line of the Degler Brothers 30 acres, Lot 25, same township. East Ohio Gas Co. is drilling a second test in the northeast corner of the C. P. and L. Allison 40 acres, Lot 12, Kilbuck Township.

E. A. Sweeney and others struck a fair gas well at No. 2 in the northwest cor-

(Continued on Page 131)

IDEAL

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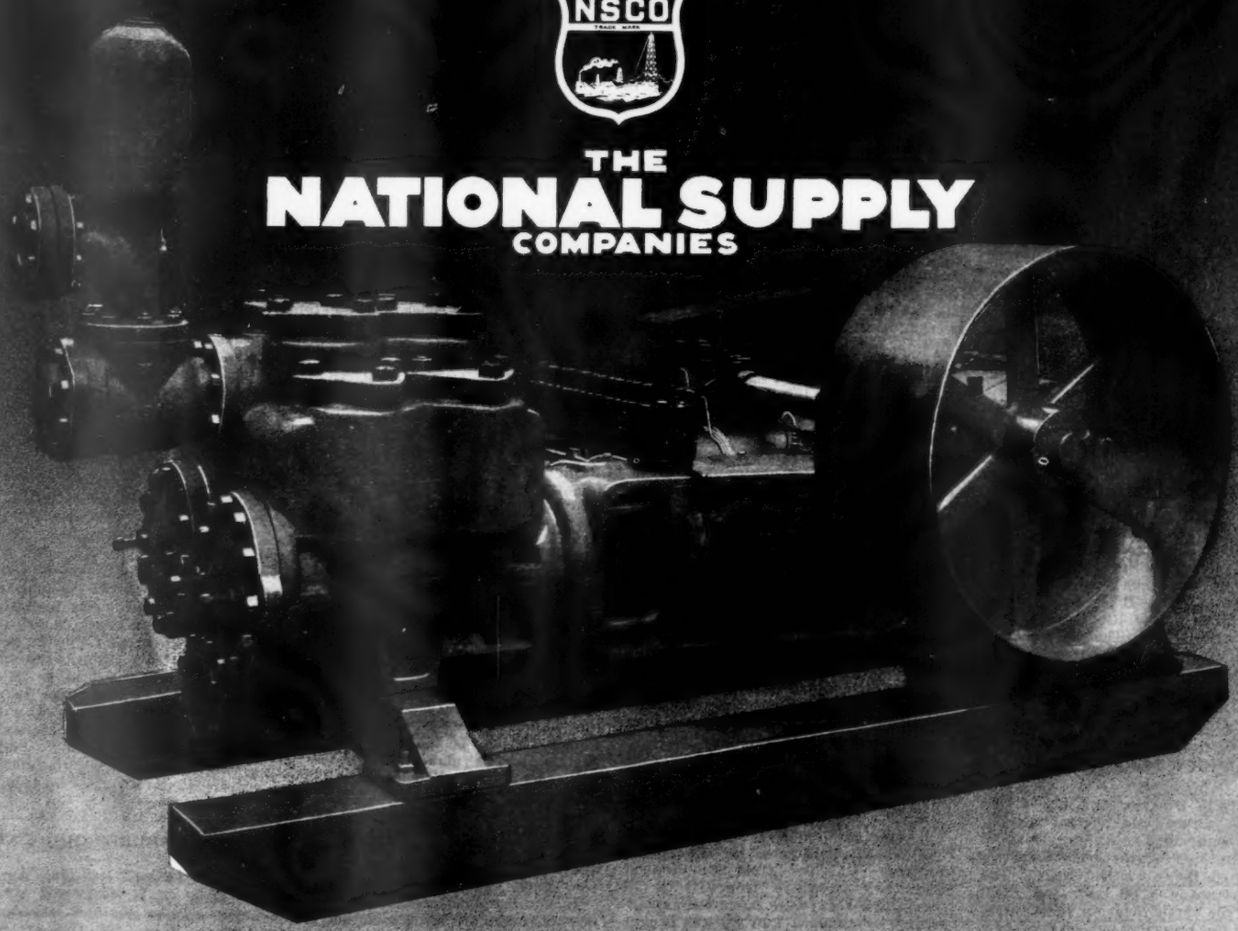


Natural Gas Developments

WICHITA FALLS AREA GAS LINE COMPLETED

The Hope Engineering & Supply Co. has completed a 200-mile pipe line system with distribution lines in 10 towns, besides Wichita Falls which will be served by the Northern Texas Utilities Co. with natural gas. D. A. Upham is president of the utilities company.

The new line, which starts in Wheeler County and runs to Wichita Falls, a distance of 200 miles, serves Wellington, Memphis, Childress, Kirkland, Acme, Quanah, Chillicothe, Vernon, Iowa Park, Burkburnett and Wichita Falls.

Natural gas for the line is secured from the field in Wheeler County. Laying of the line represents an expenditure of approximately $5,000,000, it is said.

MISSISSIPPI TOWNS MAY GET GAS SUPPLY

City officials of Jackson and Vicksburg, Miss., have approved a proposed franchise to the Ruston Drilling Co. to supply gas to the two cities. The proposed franchise will be voted on at special elections to be held in the two cities in the near future.

The gas is to be supplied from the new Rayville territory in Richland Parish, Louisiana, if the franchise is voted and the gas line laid. The Ruston Drilling Co., one of the producers in the Monroe district of Louisiana, holds considerable acreage in the Rayville area.

To supply gas to Jackson and Vicksburg would require the construction of a gas line 100 miles long and the crossing of the Mississippi River.

ACQUIRES INTEREST IN HOUSTON GULF GAS

NEW YORK, Apr. 23.—The United Gas & Electric Co., which is controlled by the Empire Power Corp., has acquired an interest of between 25 and 30 per cent in the Houston Gulf Gas Co., it was announced by Frank J. Stoltz, director of United Gas. E. L. Phillips, president of the Long Island Lighting Co., is president of the Empire corporation, which through United Gas already controls Houston Gas & Fuel Co.

The Houston Gulf Gas Co. controls the Robstown Gas Co., Robstown Pipe Line Co., Sinton Gas Co., Sinton Pipe Line Co. and Refugio Oil & Gas Co. It owns about 100,000 acres of gas lands and has contracted to supply requirements of the Houston Gas & Fuel Co.

GAS FOR VALLEY SECTION

HOUSTON, Tex., Apr. 23.—The Hope Engineering Co. is starting work on the construction of a gas line for the Valley Gas Co. from the Webb County gas districts to Brownsville. The company will serve 15 towns in the Rio Grande Valley with natural gas. The west end of the line will traverse a barren region with all the towns located in what is known as the Valley Section. It is expected to be delivering gas by October 1.

AYLMER GAS RATE CASE

CHATHAM, Ontario, Apr. 23.—G. F. Henderson, natural gas referee, recently heard an application at Aylmer, Ontario, for an extension of the temporary gas rate granted the town last year. The temporary rate was 90 cents per 1,000 feet. At the recent hearing the Central Pipe Line Co. presented evidence to show that a rate of $1.20 was necessary to meet expenses. The hearing was adjourned until June 21.

STORAGE OF OVERPRODUCTION AS NATURAL GASOLINE REMEDY

By Emby Kaye*

Superintendent of the Natural Gasoline Department of the Skelly Oil Co.

In opening a discussion on storing natural gasoline at this time, one is tempted to think of the fellow who was counseling bringing coals to Newcastle. It appears from the tremendous increases in production of this material in the Panhandle and in Greater Seminole and Central Texas, that there will be a current supply probably equal to the demand for this summer.

However, as a general and abstract proposition, it is desirable that every manufacturing plant have ample storage. The present overproduction, both of crude and motor fuels, will not last indefinitely, and when conditions are righted, the seasonal demand for our product will invariably affect the price. The surplus of production over demand, that is to say, that part of it that the manufacturer must put on the market, will "bear" the price of every gallon of natural gasoline sold. It is this "distress" gasoline, mostly in the hands of the small manufacturer, and generally offered by the broker, who does not give a "tinker's damn" what the material is selling for—that in the past has so upset the market, so much so that ever so often we have found ourselves selling the gasoline at less than the cost of manufacturing.

Ups and Downs

You will observe by a study of prices for the past few years that naturals had their ups and downs in nearly bimonthly cycles, regardless of the stability of the price of crude oil or motor fuel. There are periods of a month or two when refiners are not buying because jobbers in turn are full up or waiting expectantly on price changes, or it may be that general weather conditions and roads cut down the demand for a month or two. The same amount of material is offered, first, because the plants cannot be shut down to advantage and hence the supply is constant, and, secondly, the army of small manufacturers who have no sales organizations have no storage and sell from day to day. When the tanks are full, the manufacturer takes what he can get, and certainly the buying jobber or refiner is not sufficiently philanthropical to give him a top price. Surplus production makes a buyer's market—and the buyer takes full advantage of it—as he should.

The answer to the 10 per cent overproduction, and the answer to the seasonal requirements of our commodity, is obviously storage, storage for a minimum of 60 days to carry us over the "low-consumption" horizons. In this way you will not only remove the surplus and help sustain the price for that portion of your production which you sell, but you are enabled to market at a later time when consumption has increased, the stored product at a price created during the then period of maximum consumption. This is obviously as simple as the A B C's. This is the principle of co-operative marketing organizations, to hold back some of the cotton, some of the tobacco, some of the potatoes produced, until the demand has increased and the supply-demand ratio brought into equilibrium.

Kinds of Storage

Natural gasoline was first stored in 7 by 30s on account of its high vapor pressure. Gasoline from compression plants ran anywhere from 15 to 35 pounds, and heavy-type tanks were necessary. The standard 7 by 30 was bought to withstand an operating pressure of 25 pounds and was tested at 75 pounds. With the absorption process and graded products that eliminated some of the higher and more volatile fractions, lighter and larger tanks came into use, the obvious object being to reduce the cost per gallon. The most popular tank was a 10 by 40, with a capacity of 25,000 gallons. These tanks are generally designed for 10 pounds operating pressure and a 25 to 35-pound test. They are constructed of one quarter-inch material with three-eighths-inch head, seams riveted and welded. This is undoubtedly the best storage for the average grade of material. Both the smaller tank and the 10 by 40 are usually covered by some sort of a building in order to keep off the direct rays of the sun. Natural gasoline is made by the application of pressure and by the reduction of temperature. To keep these constituents in the liquid stage with a minimum of evaporation, storage is required that will afford both confined pressure and as low temperatures as possible.

Underground Storage

In the past few years several companies have gone to underground storage. The tanks best adapted for this service are the 10 by 40s, already referred to. Advantage is often taken of the contour of the ground. A side of a hill may be cut away and batteries of 10 tanks each on two sides, facing each other, are set on regular concrete foundations, a steel roof is built over the front, and the tanks covered with dirt so that the tops of the tanks are nearly two feet underground. It has been found that while insulation on tank cars and on gasoline tanks ultimately permits the liquid to attain atmospheric temperatures, and only stops the rapid fluctuations in temperatures during the "ups", from which big losses occur, the buried tank affords better protection against the heat, it having been demonstrated that gasoline may be stored throughout the summer with a maximum of 78 degrees Fahrenheit with an atmosphere of as high as 110 degrees Fahrenheit. The cost of covering these tanks with dirt need not be much more than that required to build steel and galvanized sheds. The decision, as between shed and dirt covering, should be made on the basis of the permanency of the storage.

The elliptical, and then the cylindrical tank, or hortonsphere, a tank of 10,000 bbls. capacity, have been used to some extent by refiners and natural gasoline manufacturers. These are so-called pressure tanks. There is no advantage in this type of tank over against the 10 by 40s since the cost is practically the same, and, while the small tanks have a salvage value, the larger tank has no salvage value except as junk, and at that the cost of cutting it up will be nearly as much as its junk value.

Size of Tanks

Several companies have used the 25,000-bbl. tank, insulated top and sides. I believe this is an expensive way of storing 85 or 90 recovery gasoline, unless the vapors may be taken back to a very slightly loaded plant. Otherwise, the vapors so tax the plant that its efficiency is impaired, with the result that good gasoline appears in the residue gas. It is ten to one that in that event it is better to operate more efficiently and allow the vapors to blow off. However, tests alone can determine that.

In one instance to my knowledge, 55,000-bbl. tanks are being used, but in this case the gasoline has been treated for complete removal of the butane and propane. But even so (there being no gasoline plant on the storage farm), a small "recovery" plant is operated to recover the vapors from a number of these tanks. Although the cost per gallon is low indeed, gasoline will not be stored in tanks which, like these, will not stand an ounce of pressure, except as a last resort if the operator cannot move his material. In that event he will "debutanize" the product first, take his first loss then and there, instead of allowing evaporation of the butane and propane to carry off some of the lower valuable fractions.

The cost of storage per gallon, as we find it, is as follows:

7 by 30s erected, with shed	$ .10
10 by 40s erected, with shed or buried	.05
Hortonsphere, 10,000-bbl.	.06
25,000-bbl., low pressure, insulated	.014
55,000-bbl., low pressure, uninsulated	.011

Broker as a Factor

As I have stated, storage is an economic feature at this time, because it has so important a bearing upon the price we receive for our commodity. I refer to the broker.

The portable plant and the numerous new fields have placed some gasoline plants in the hands of people who have no business to have them. They do not understand the art. They find themselves in financial stress and are forced to rely upon a broker who markets their product at so much per gallon. He gets his regardless of the price the product brings. Many legitimate small operators and many natural gas companies to whom natural gasoline is an unimportant by-product, do not maintain sales organizations but sell their products through brokers, and they hardly realize the financial losses they are bringing upon themselves. The broker is anxious to sell and sell he will, with little or no effort on his part to maintain a fair price structure. It makes me boil under the collar when I read in telegrams from the trade, at a time like this, that certain brokers are bearing the market now in order to beat a manufacturer out of a sale, when the price we offer is less than the manufacturing cost and the price quoted by all manufacturers.

I hope the time will come when small operators will provide themselves with storage and when several large manufacturers will assist the small fellows, unable to provide storage, with an outlet for their material through an agency that will be operated without profit, to the end that we all come in for a little honest profit. If we store, we will not be so often and so much at the mercy of chance (consumption depending upon seasonal demands and weather conditions) and a price created by an occasional 10 per cent surplus.

*Before Southwest Division, Natural Gas Association of America, at Dallas, Tex.

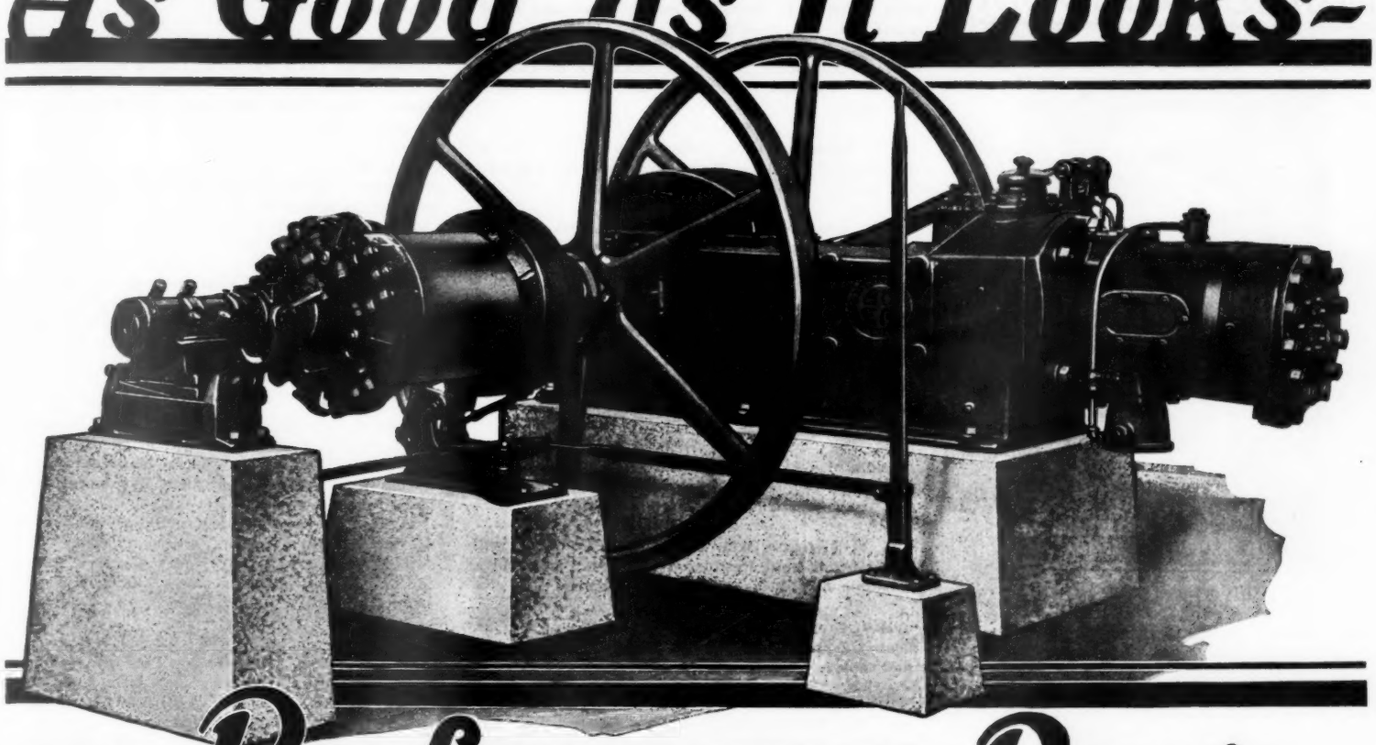
SOUTH PLAINS PIPE LINE

AMARILLO, Tex., Apr. 23.—The first shipment of pipe for the West Texas Public Service Corp. of Delaware gas pipe lines from the Amarillo gas field to the South Plains has been started. The first shipment was of 8-inch pipe, and it will go direct to Lubbock, being used in the line from Lubbock to Slaton. The second shipment was to be of 16-inch pipe, to be used from the wells in Potter-Moore-Hutchinson and other counties to Amarillo's gate. Fourteen-inch pipe will be used from Amarillo to Plainview; 12-inch from Plainview to Lubbock; 6-inch from Plainview to Floydada and Lockney.

TRUITTSBURG'S BIGGEST GASSER

TRUITTSBURG, Pa., Apr. 23.—Contractor O. H. Culberson struck gas in the Apollo Gas Co.'s lease on the E. J. Truitt farm, Truittsburg, flowing 20,000,000 feet, the largest well ever drilled in Clarion County.

As Good as It Looks—



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It looks like a *real* power plant—sturdy, simple and serviceable—and in its performance lives up to its appearance 100%.

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For longer running time, lower maintenance cost and utter dependability it is the outstanding oil country engine.

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52 York Street ∴ ∴ Grove City, Pa.

BESSEMER

BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

MEN KNOWN IN OILDOM

L. C. McEvoy

L. C. McEvoy, of Tulsa, is an oil man who has always evinced an interest in clean sports, and his life has been divided between baseball and oil.

He was born in the heart of the Pennsylvania Field, at Bradford, November, 1881, and acquired a first-hand knowledge of early drilling and producing methods at the time of life when most boys are studying their three R's.

After completing his elementary education in the Bradford schools, he entered Canisius College at Buffalo, N. Y., and graduated in 1900, at the age of 18.

The next 12 years of his life were devoted to teaching, and he was identified with educational institutions at Cleveland, Ohio, Prairie du Chien, Wis., and Philadelphia, Pa.

He was director of athletics at St. Joseph's College, Philadelphia, Pa., from 1907 to 1911, and during that time developed a baseball team which sent several stars to the big leagues. It was while he was in this capacity that he formed the acquaintance of Connie Mack of the Athletics and Ty Cobb and Frank Navin of the Detroit Tigers, and became instrumental in recommending young ball players to these major league teams.

In 1913, he decided to come West and enter the Mid-Continent fields, and located at Okmulgee, Okla., where he remained 13 years. During that time he was engaged in drilling and producing oil.

When the Okmulgee Baseball Club of the Western Association was in dire straits in 1921, Mr. McEvoy was selected to lead it out of the financial wilderness, and he served as president from 1923 until 1925. During this time he developed one of the greatest minor league teams known to baseball, and at one time had on his club seven men who established a season average of over .300 per cent.

During the winter of 1926, he moved to Tulsa, and early this spring by purchase of the interest of J. K. Crawford, he became president of the Tulsa Baseball Club of the Western League.

* * *

PERSONAL PARAGRAPHS

Howard Klein has resigned from the American Petroleum Products Company, Chicago.

* * *

Mark U. Weber spent a few days in Casper, Wyo., recently from his home in Denver, Colo.

* * *

Earl Converse, director of specialties of the Dearborn Chemical Company, Chicago, manufacturers of No-ox-id, is spending from four to six weeks in California studying corrosion and soil conditions.

Mr. and Mrs. Archie Currie have returned to Petrolia, Ontario, from the Venezuela oil fields.

* * *

Mr. and Mrs. John Wilkins and David Wright have returned to Petrolia, Ontario, from the Trinidad Field.

* * *

Floyd J. Moore, Tulsa representative of Hughes & Co., Chicago, was at the Chicago office last week.

* * *

J. J. Tuxman was a visitor from Kansas City at the office of the Atlas Petroleum Company, Chicago, last week.

* * *

C. A. Gustafson, marketer of petroleum products at Chicago, has been visiting refiners in Shreveport, La., for several days.

* * *

W. A. Williams, president of the Crown Central Petroleum Corporation of Houston, Tex., left for an extended trip to New York City.

* * *

Robert E. Lamberton, Arthur E. Pew, Jr., and Samuel B. Eckert have been elected new members of the board of the Sun Oil Company.

* * *

Louis Weiss, representative of the Stearns-Roger Company, Denver, Colo., is making his headquarters at the Albany Hotel, Tulsa, Okla.

* * *

K. S. Metcalfe, who has been in Colombia with the International Petroleum Company, is spending a couple of months in Petrolia, Ontario.

* * *

Mrs. Frank Yerkes, whose husband has recently been appointed a field superintendent in the Trinidad fields, is visiting in Petrolia, Ontario.

* * *

H. A. Pagenkoff, secretary of the Southern Natural Gas Company of San Antonio, Tex., has been called to Wisconsin by the illness of his mother.

* * *

Don Weir, southwest manager of the Jefferson Union Company, with headquarters at Dallas, Tex., has been paying a visit to the Oklahoma fields.

* * *

Ernest H. Lockwood, of Pasadena, Calif., was chosen to fill the vacancy caused by the death of E. F. Powers at the annual meeting of the Union Oil Associates.

* * *

F. L. Rogers, sales manager of the Deepwater Refineries, Inc., of Houston, Tex., is making a three weeks' trip visiting all branch sales offices of the company.

* * *

Ambrose A. Moody, of the Jarecki Supply Company, with headquarters at St. Louis, Mo., left recently for a trip to Toledo, Ohio, Pittsburgh, Pa., and other eastern points.

* * *

Otto D. Donnell, president of the Ohio Oil Company, visited the Casper, Wyo., offices of the firm. He was accompanied by Ward A. Miller, president of the Illinois Pipe Line Company.

* * *

Harry W. Davis, representing the New Bedford Cordage Company, has been transferred from New York to Tulsa, Okla., and will handle the Mid-Continent oil field sales from that point.

* * *

John N. Richardson is back in San Antonio, Tex., from a trip to California. He is interested in Cherokee County, where the Humble Oil & Refining Company recently brought in a gusher.

* * *

J. H. Jenkins, vice president of the Tidal Oil Company, and also vice president of the Associated Oil Company, in charge of the Texas division, headquarters in Fort Worth, was in Houston, Tex., last week.

* * *

William L. Connelly, of the Mammoth Oil Company, Casper, Wyo., was called to Toledo, Ohio, where Mrs. Connelly and daughter were visiting old friends and relatives, where the daughter was taken ill and had an operation. Miss Connelly is getting along nicely and Mr. Connelly is making a flying business trip to New York City, after which he will return to Toledo and spend a few weeks with his family and many friends, as he was a Toledo resident for many years.

R. Van A. Mills and R. R. Brandenthaler, of the U. S. Bureau of Mines experimental station at Bartlesville, Okla., have been visiting in Ponca City, Okla., where they have been making observations on oil recovery.

* * *

A. E. Watts and J. W. Stanford, of the Sinclair Consolidated Oil Corporation, have returned to the United States after a two months' business trip in Mexico. Mr. Watts went on to New York City from Houston, Tex.

* * *

Max Burleigh, who was in charge of the land department of the California Company, with headquarters at Amarillo, Tex., has been transferred to Colorado, Mitchell County, Texas. He has been succeeded by C. A. Mix.

* * *

R. J. Keown, for ten years treasurer of the Union Oil Company of California, has been elected a member of the executive committee to fill the vacancy caused by the death of C. W. Ralph. Mr. Keown has been a director since 1924.

* * *

* * *

John G. Marzel, who succeeds Albert Bartlett as head of the Geological Department of Wyoming, spent several days in Casper, arranging for the spring work of his department in connection with the oil field work in the state.

H. O. Cameron, of Toledo, Ohio, general manager of the Sun Oil Company, and two other representatives of the company, Harry Maxwell, landman and A. S. McClintock, geologist, have been looking over the Saginaw, Mich., Field.

* * *

W. J. Alexander, retired vice president and general manager of the Eureka Pipe Line Company, who with Mrs. Alexander, has been spending the winter at Bradenton, Fla., will return to their home at Parkersburg, W. Va., this week.

* * *

F. M. Kent, Parkersburg, W. Va., superintendent of stations for the Eureka Pipe Line Company, and E. J. Shetter, Winchester, Ky., superintendent of gaugers for the Cumberland Pipe Line Company, visited Pittsburgh, Pa., last week.

* * *

* * *

Charles Murrin, old-time oil operator in the Central Ohio Field, is spending some time in the Saginaw, Mich., Field, where he expects to start development work shortly. Mr. Murrin was one of the discoverers of the deep Clinton sand gas and oil.

Fred Rice, assistant general superintendent of Humble Oil & Refining Company in North Louisiana and southern Arkansas, suffered cuts and bruises when the automobile in which he was driving collided with a street car last week. He is now back at his desk.

* * *

Walter B. Higgins, vice president, H. E. Smith, district sales manager with headquarters at St. Louis, Mo., and Burt S. Shafer, field manager tubular sales division of the Wheeling Steel Corporation, of Wheeling, W. Va., were visitors in Tulsa, Okla., last week.

* * *

Stanley W. Morshead and Malcom McNaghten have been elected to the board of directors of the Union Oil Company of California, replacing George W. Davison and George W. Wickersham, resigned. R. J. Keown, treasurer, has been elected a member of the executive committee.

* * *

B. P. Crittendom, refinery manager of the Louisiana Oil Refining Corporation of Shreveport, La., has returned to his office after a 10 days' absence during which time he moved his family from his former home at Boston, Mass. Mr. Crittendom only recently came to the Louisiana Oil Refining Corporation from the Beacon Oil Company of Boston, Mass.

* * *

L. L. Betchel, formerly assistant to General Manager A. W. Peake of the Midwest Refining Company, has been promoted to be general superintendent of the Midwest Exploration Company, with offices at Amarillo, Tex. George H. Jaques, formerly superintendent of machine shops and equipment, has been promoted to fill Mr. Betchel's place as assistant general manager of all the Midwest Refining Company's operations.

Close Control of the Temperature of the Steel Prior to Forging a

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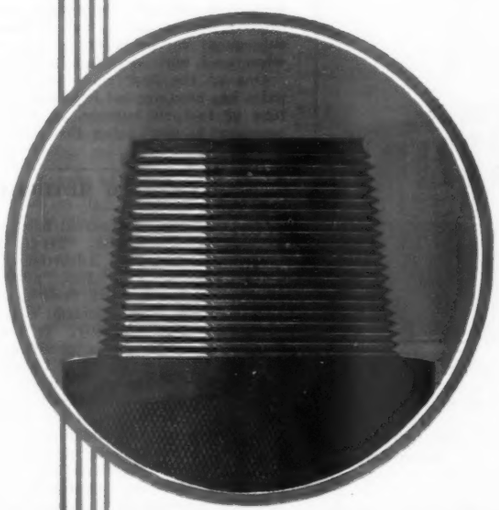
Prevents overheating and assures the high standard of performance in the finished product.



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HOUSTON
TEXAS

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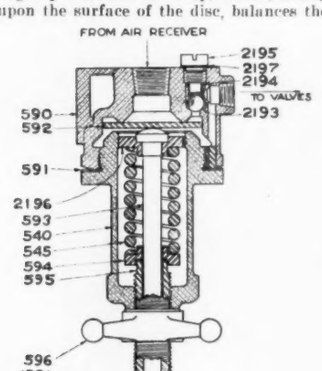
EQUIPMENT AND SUPPLIES

IMPROVED SIMPLATE DIFFERENTIAL UNLOADER

The accompanying illustration portrays the new improved Simplate differential unloader with which the Chicago pneumatic air compressors are equipped. This new control valve possesses advantages not heretofore obtainable. The valve No. 592 is a single plate of stainless steel ground to a perfect flat surface. The diameter is also ground to fit cap No. 590 with a few thousandths clearance. The edge is well rounded to prevent it sticking as a result of cocking on its seat. The cap No. 590 contains a ball check valve No. 2,193, spring No. 2,194 and ball check screw No. 2,195. The flanges by which the unloader is attached to the compressor or panel are on the cap. This permits dismantling the unloader for examination or cleaning without disturbing the piping or valves. The device operates with a 5-pound range between unloading and loading the compressor. An unloader is set to unload generally with 100 pounds and the reloading pressure is 5 pounds lower, or 95 pounds.

As the air pressure rises to 100 pounds the pressure on the upper side of the valve No. 592 balances that of the spring on the under side of the valve No. 592 and air escapes past the seat into the annular space around the outer edge of the disc. Because of the close fit of the disc in the cap No. 590 and the ball check valve the air cannot escape and a slight pressure is built up, which, acting upon the surface of the disc, balances the



pressure of the spring on the lower side of the disc and the disc moves down against the seat in the body of No. 540. The ball check valve is then exposed to full receiver pressure and being held on its seat by a very light spring immediately moves off the seat and uncovers a quarter-inch hole for air to pass through on its way to the unloading inlet valves.

Upon a drop of receiver pressure equal to the range, in this case, 5 pounds, the pressure of the spring No. 545 balances the pressure due to the air on the disc and causes it to permit leakage past the lower seat into the space around the stem. This leakage is restricted slightly by the upper spring holder No. 2,196, which is a moderately close fit in the body No. 540 and a slight overbalancing pressure is built up which causes the valve disc No. 592 to return to the upper seat with a positive movement and air is vented from the unloading piping past the upper spring holder.

The action of the valve in opening and closing is positive and because of the absence of tight lapped fits its response to pressure changes is accurate.

The unloader is now built for standard pressures from 50 to 125 pounds; for low pressure work of 40 pounds or less, and for high pressure work up to 500 pounds.

NEW VALVE FACTORY ON PACIFIC COAST

Another factory to be devoted largely to the manufacture of a product for use in the petroleum and gas industries is being completed at Oakland, Calif., by the Merco-Nordstrom Valve Co., according to an announcement by H. S. Shuey, secretary and treasurer.

The factory site was selected several months ago and the factory is now nearing completion. The plant is at the corner of Twenty-fourth and Peralta Streets, covering an area of approximately 30,000

square feet, and is being equipped with special machinery for the progressive production of valves of all sizes for use not only in the gas and petroleum industry but for many other industries.

Heretofore, Merco-Nordstrom plug valves have been manufactured on the Atlantic seaboard, but the executives came to the conclusion that business conditions warranted a complete manufacturing plant on the Pacific Coast, increasing the productive capacity and permitting of economical distribution to all parts of America.

The development of Merco-Nordstrom plug valves is interesting. Little more than 10 years ago they were unknown. In 1916, a mechanical engineer, Sven Johan Nordstrom, working for a mining company in Mexico, observed that many serious troubles were being experienced in handling liquids of various character and air under pressure, due to the leaking and sticking of valves. He conceived the idea of introducing lubricant under pressure thoroughly covering the bearing surfaces of the plug so that the pressure of the lubricant itself would offset any pressure coming through the line. His invention of the Merco-Nordstrom valve was the beginning of very rapid development and other industries soon adapted the valve. At present the valve is perhaps represented in a hundred or more industries.

AUTOMATIC PORTABLE AIR-DRIVEN HAND SAW

An automatic portable hand-saw, operated by compressed air and doing five times the work of an ordinary saw in the hands of a workman, has been devised by the Ingersoll-Rand Co., 11 Broadway, New York. This saw, it is said, reduces sawing costs from 50 to 75 per cent.

By a mere shift of blades the pneumatic hand-saw may be put to work in sawing wood, soapstone, bakelite, wallboard, cables, copper and other materials. Cross-cut or rip blades for different types of work are available. It cuts timber; does trimming work on buildings and scaffolding, and it is used by railroads in car repair work.

In sawing wood the portable air-driven hand-saw can be operated 20 times as fast as a workman can ply his saw, and in this, as well as in all other work, it can be operated continuously without fatigue to the operator. Its weight is such that it can be easily carried about and handled. The 8-inch size weighs only 23 pounds.

ADMIXTURE FOR CEMENT IN OIL WELL DRILLING

Extended investigation made by the Master Builders Co., of Cleveland, Ohio, is said to have resulted in the perfection of an admixture for cement, which, in turn, is going a long way toward eliminating serious problems of deep oil well drilling and operation caused by encounters with large quantities of water at high pressure and even at high temperatures; salt solutions or other chemicals, and gas pockets.

The development of the special affective admixture, for cement used in the oil field, through the Master Builders Co., is of significance to the oil producing and consuming public, because of the number of locations where it has been found that deep wells produce high quality and large quantities of oil.

UNIFORM DISTRIBUTION BY FLOODLIGHT LENS

A new floodlight lens development which effects a uniform distribution of light over broad areas, such as is frequently necessary in refinery and oil field floodlighting, together with a number of refinements in projector design and construction, are among the new additions to the complete line of floodlight projectors manufactured by the Pyle-National Co. of Chicago.

The new lens which is known as a 45-degree circular divergence lens is now produced for the first time in optical glass in a 23-inch diameter, making it suitable for the largest Pyle-National projectors, as well as for smaller units. The lens is designed in optical glass to work with the minimum loss of light by absorption and diffusion and to spread an absolutely uniform beam across a 45-degree arc. The Pyle-National Co. has found a very definite need for this type of lens in many floodlight installations. Such refraction is particularly valuable in the even illumination of buildings, signs, monuments, etc., and for the foreground near floodlight towers where long distance projectors are used.

NEW PAINT IS USED ON FUEL OIL BURNERS

A paint which is claimed by the manufacturer to seal joints against oil leaks has been developed by the General Electric Co. and is sold by the merchandise department at Bridgeport, Conn. The product, known as G-E No. 880, Red Protective Paint, is also to prevent water and gas leaks.

The paint, which is dark red in color, requires no priming and can be applied by brushing or dipping. Denatured alcohol is used as a thinner. It dries rapidly and produces a hard, smooth, glossy film which, it is reported, is easily cleaned and which prevents excessive collection of dirt and conducting material, thereby decreasing surface leakage and subsequent carbonization of the surface when used with electrical apparatus.

One of the first fields in which the paint has been applied is in the manufacture of fuel oil burners, in which one company is now using the material to seal all joints.

ADVERTISING METHODS

The Oil and Gas Journal has received a very complete folder, "Trade, Industrial and Direct Mail Advertising" from George Batten Co., Inc., advertising agents, which sets forth their system of handling trade and industrial copy separate from consumer copy. In the foreword William H. Johns, president, says, "The service department of George Batten Co. operates in two divisions. They are the Consumer Copy Division and the Trade and Industrial Copy Division. The purpose of this folder is to portray the work of the Trade and Industrial Division only. There are six other departments of George Batten Co. organized for other forms of specialized service."

The Trade and industrial Division was organized in 1921 and is in charge of men who give it their full time and are specialists in their work. The folder explains fully how copy is prepared by this department.

GENERATOR AIR COOLERS

The Griscom-Russell Co. has just published a new bulletin on the subject of generator air coolers which is of interest to all power plant executives and engineers. This bulletin explains the application of generator air coolers, describes the special features of the U-fin cooler, includes a list of representative central stations and industrial plants equipped with this apparatus and contains several illustrations of typical installations and arrangements. Free copies of this bulletin may be obtained by writing to the Griscom-Russell Co., 285 Madison Avenue, New York City.

JOINS LUCEY CORP.

H. S. Lindenmuth, formerly with the International Supply Co., has joined the organization of the Lucey Products Corp., with headquarters at Tulsa, and will specialize on Lucey rotary drilling equipment and further the introduction of manganese steel to the oil industry.

MOVES GENERAL OFFICES

The Tulsa Pipe & Supply Co. of Tulsa, Okla. has moved its general offices to the Tulsa Trust Building, and has opened new pipe yards on the main line of the Frisco railroad at East Tulsa. The company has a branch at Borger, Tex., where one of the largest pipe machines in the Panhandle has been installed, and a large stock of new and used casing is carried.

METHODS SUGGESTED TO SHUT OFF WATER PENETRATING OIL SANDS

By Ford Alexander*
President of the Ford Alexander Corp., Whittier, Calif.

Water! — so essential to the drilling operation of oil wells, and yet such an enemy to the production of oil! What effect water has upon an oil or a gas sand is not definitely known, but one thing is certain—it is no friendly element and, since the discovery of oil, the struggle has been to exclude it from the sands.

Water penetrating the oil sands may be divided into three different classes: top water, bottom water, and intermediate water.

Top water is always encountered before the oil sand is reached, but the depth may vary in each individual case. This water is generally considered the easiest to exclude.

Bottom water is found after passing through the oil sands and, like top water, may be found at varying depths from the bottom of the oil strata. In many cases, however, there is but a thin partition between the bottom of the oil-bearing strata and the water. This condition is frequently difficult to overcome, yet less difficulty is encountered with bottom water than with intermediate water, which either comes in with the oil or lies in thin layers of formation intermittently with the oil-bearing strata.

Results of Water

The action of the water penetrating the oil sands has always been problematical. Many instances are recorded where in gas sands water left standing on the gas-bearing formation for but a few days has entirely killed the well from further production, and the same is true with oil sands, in perhaps a lesser degree. Instances have been known where the water left standing upon the oil sands for a period of time has eventually been shut off or exhausted and the hole bailed dry but the operators found that the production originally obtained had been entirely stopped. Water is also injurious because it tends to lower the specific gravity of the oil. It forms an emulsion, and has a tendency to form paraffin, which may greatly hamper the operation of the well. The cost of producing water is as great as the cost of producing oil and the total cost of oil production is greatly increased when we have to include the expense of separating the water and preparing the oil for refining processes. While bringing in the well, oil is sometimes used as a drilling fluid, substituting for water. In redrilling, serious injury may be done by having water on the sand.

The amount of water penetrating the oil sand is governed largely by its own original flow and/ or pressure. In the early operations of a field, while the oil and gas pressure is high, the water may be quite unnoticeable until after the pressure of the oil and gas becomes lower than that of the water. The water, being heavier than oil, begins to find its way into the oil sands, and soon drives the oil out of its original territory. When a well is brought in, water is often produced for several days before the oil appears. This shows the distance to which the water has penetrated. During the early days of oil production, many wells were ruined by the infiltration of water. Although the industry progressed and methods have progressed with it, these unfavorable water conditions still exist comparatively uncontrolled, and valuable oil deposits are still being ruined by water.

Former Methods

Formerly, top water was shut off by simply reducing the diameter of the hole to a smaller size at a given point and allowing the weight of the casing to rest upon the resulting "shoulder." The weight would impact the casing into the formation far enough to seal out the water. If, after drilling ahead a few more feet, water is still found, preparations would be made to determine if it was coming from behind the casing. Usually some high-colored paint or other substance would be poured down the outside of the casing. Then, taking some of the fluid from the inside, it would be known whether or not the casing was leaking. One way to check a leak of this kind was to pour dry grain such as wheat, barley, or even beans down the outside of the casing and allow the substance to settle. After it became moist, it would swell; and many water jobs were conquered in this way.

The first packer used in shutting off water was the seed bag. This has been displaced by the bottom-hole packer, which is so constructed that a heavy rubber ring expands when the weight of the casing rests upon it.

Bottom water is difficult to overcome. Lead plugs, nearly filling the diameter of the hole, may be lowered to just above the water leak, and after pounding on top of the lead plug with the drilling tools, the lead will batter and seal the water off. Other materials have been used in a similar way with satisfactory results. The placement of these materials to the proper point may be accomplished by loading them into tin or galvanized containers, much the same as those that carry high explosives. After being lowered to the proper point, they are pounded into a mass by the drilling tools.

Intermediate water, when encountered in the early days, was exhausted by pumping, or the hole was plugged. As with oil, water in many cases can be exhausted, or the flow greatly reduced. In 1892, when the famous "Big Injun" fields at Sistersville, W. Va., were brought in, they pumped nothing but water for months.

Formation Difficulties

During the discovery period in the eastern oil fields, the formation was of such firm character that the seal would become sufficient to exclude the water completely. The formation was firm enough to prevent water leakage and percolation through the formation. Recently, however, we have found formations in the eastern fields so weak that they allow the water to percolate through, even with a perfect seal. Consequently, water shut-offs are difficult.

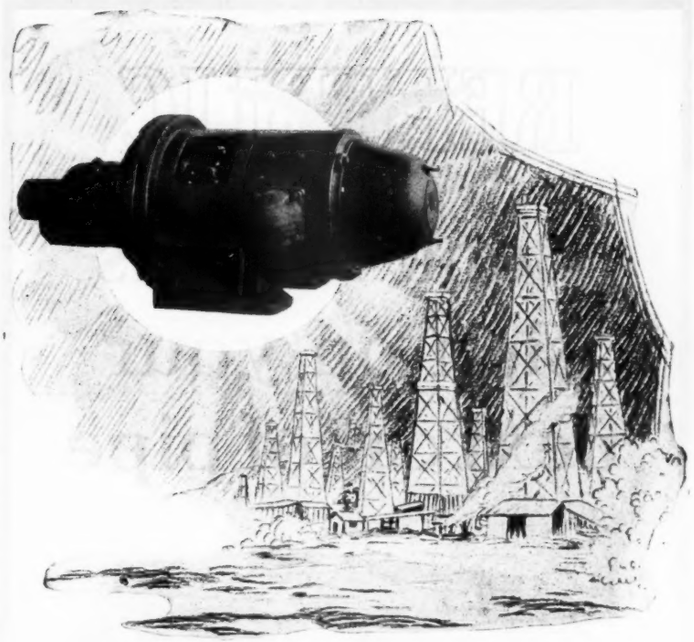
In drilling wildcat wells, the penetration of water sands is just as great a problem as the penetration of oil sands. Where to make the water shut-off is guesswork. In many instances, the drilling progresses even into the oil-bearing strata before a shut-off is made. In these cases, we must plug back where a shut-off can be made. But after the first few wells are drilled, it is more or less easy to tell where water will be encountered, and determining the point to shut it off is similarly simple.

Determining the exact point from which the water is coming may be quite difficult. This can be done by filling the entire well with fluid; then bailing the well until the fluid has been displaced by the water coming in. Analysis of the water will prove within a short distance the place from which it is coming. This is because the water has not been disturbed below that point. There are also electrical devices that register differently with varying classes of fluid.

Sometimes during the progress of drilling a well, more than one water shut-off is made; but, in any case, the particular job is the inside water string, which is usually set very close to the top of the oil sand.

When once the hole is drilled to a given point and the decision is made to set a water string, the casing is lowered to the point. If the regular method of cementing is used, circulation is kept until it is known whether the area in which the cement is to be placed has been entirely cleaned of drilling fluids that have been used during the process. The cement must have solid con-

*Oil Bulletin of the Chamber of Mines and Oil.



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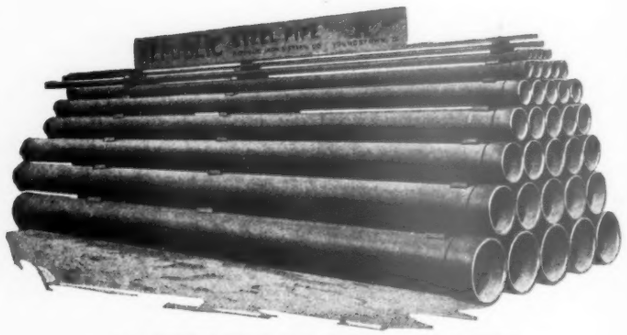

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In the oil country especially, good pipe is essential to meet the gruelling conditions. *Republic makes good pipe.*

Tubing—Casing—Line—
Drive—Rotary
Drill Pipe

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Cleveland El Paso

tact with the walls of the hole and the sides of the casing.

When this circulation has been completed, a predetermined amount of cement is mixed into a semiliquid form and, with pumps, is forced to the inside of the casing through the same connections that were used during the circulation period. After the necessary quantity of cement has been pumped into the well, the space inside the casing is pumped full of water or mud, forcing the cement down the inside of the casing and out at the bottom. Usually during this process there is a noticeable pressure in the forcing of the liquids into the casing, and this may increase materially during the latter part of the process. Arrangements having been previously made, as soon as the pumping has been completed, valves are closed, thereby holding this pressure for a number of days while the cement hardens around the base of the casing.

Cement is very largely used in the excluding of water from oil sands. It can be done by several methods, but, in a standard tool drilling, the hole is generally cleaned out to the bottom, a quantity of cement is dumped into the hole with a dump bailer, and the casing is lowered down into this cement to set. Although this is a simple method and has been effective in a number of cases, it is not so reliable as the method of placing the cement around the casing by the use of force pumps. Where pumps are not used and the cement is dumped, the casing may be pulled to the top of the derrick and closed at the top. A solid column of water is forced inside the casing, which, when it is lowered, will force the cement to the outside at the bottom of the casing.

Question of Preparation

The question of preparation is necessarily one of great importance, for the walls of the hole might become plastered with even a thin film of the drilling mud, and then the space between the casing and the wall of the hole would be entirely filled with cement. In such a case the water might find its way through the space between the cement and the "true" formation, which might at first be of but small amount; but as the flow of water continued, it would enlarge the channel and shortly flow entirely into the well.

There is another condition that may result in failure to shut the water off, even though apparently everything has been done in the most careful manner. It is generally conceded that few perfectly straight holes are drilled. Because of these conditions casing will rest against one side or the other of the hole or wall practically all the way down. It is hardly possible for the casing to stand in the center of the hole for any great distance. If such is true, that part of the casing resting against the wall prohibits the cement from encircling the casing. With the remainder of the hole filled with cement, it would still allow the water to travel up or down the hole.

To overcome this condition, a cement cavity about 30 feet from the bottom of the casing is formed by shooting a small amount of explosives at that point. Then, after cleaning the hole, the cement is forced down the casing and up into the cavity, filling the space between the outside of the casing and the walls of the hole. This is considered the most satisfactory method because a body of cement has more strength than a thin film. The reason for shooting the cavity 30 feet from the bottom is to allow the shoe joint to be held in the original drill hole, which will not permit the casing to shift.

Completing Job

In case of a partial success, or where nearly all the water has been excluded by the cement method, a complete shutoff is obtained by first creating a pressure, with pumps, sufficient to force water or liquid into the formation from where the water is coming. This is greatly facilitated by placing a small shot just below the base of the casing, which will open up the crevice through which the water is flowing. After this pressure has been attained, cement is pumped into this opening, and the process is continued to a very high pressure, or as long as the opening will accept the cement. Then, as in the original plan, this pressure is held for a period of time, allowing the cement to set.

Recementing jobs and cementing for bottom water are accomplished by using a string of tubing, through which the cement is pumped. After the tubing is lowered to a given point, it is packed off at the top and the casing is filled with a solid column of fluid. This procedure prevents the cement from rising in the hole. After a sufficient amount of cement is used, the tubing is raised some distance, again packed off, and the pressure is again applied, to be held until the cement has hardened. Thus, the cement is displaced inside the tubing and does not become fastened at the bottom, as it has been raised above the cementing point.

Bottom Water

Bottom water can be shut off in a similar way. After ascertaining the point from where the water is coming, the operator forms a cavity by shooting the well at the point where the shutoff is to be made. This should not, however, be done in the water strata, as this would have a tendency to increase the flow. The hole is cleaned out and cement is dumped until the cavity is entirely filled. A small shot of explosives is then placed on top of the cement and fired. The action of the explosives first creates a tremendous pressure on top of the cement, which forces it into the crevices that might, under less pressure, not receive the cement because of the fact that these crevices are already filled with fluid. During the explosion, the pressure on the cement is so great that it is squeezed out into these places.

With the tremendous temperature caused by the explosion, in addition to the pressure, the cement quickly, if not instantly, sets. Then a quantity of cement is dumped into this small cavity created by the last explosion. This is allowed to stand a few days until the cement is thoroughly strong and, unless the formation is weak, the job is successful.

Intermediate Water

To exclude intermediate water, the entire area that is producing water must be plugged. Usually these cases necessitate a double cementing job; that is, cementing a string on top of the intermediate water, and then, if the oil is to be recovered from a lower depth, another cementing job is necessary at the bottom of the intermediate water strata.

In shooting the entire thickness of the water-bearing strata, the opening resistance will be lessened, the water will flow more freely. After a bridge is made, at both the top and the bottom of the strata, cement is forced into the formation, provided greater pressure than the natural "rock pressure" is applied. For example, the water may be found at 4,000 feet and rise in the well to 3,000 feet. The rock pressure, then, is approximately 1,200 pounds per square inch. If more than 1,200 pounds per square inch is applied, the formation will receive rather than produce. By pumping at the desired pressure, the cement will be forced into and seal the pores or openings. Then the cavity, which is much larger than the drill hole, may be drilled through and still have sufficient plugging to hold the water back. In all cases where cement is used, the pressure must be great enough to keep the fluid from "working." In instances where gas is continually flowing through, the cement will harden, but not in a solid mass.

Precautions must be taken in redrilling. Usually a quantity of casing is left in the hole, and unless this is plugged in some manner, the oil is more than likely to percolate up or down, using this casing as a channel. Before pulling the casing in a redrilling job, it is very desirable to fill the inside of the lower portion with cement, but often this is impossible as the casing may have collapsed, or parted above, or may

specifications should be designed to meet modern requirements in the light of modern knowledge

*NORTH DAKOTA NOW CLASSIFIES "WATER-WHITE" AS AN INDICATION OF AN ANAEMIC, "BLOODLESS" GASOLINE:

The following quotation from The Oil and Gas Journal, issue of March 31, 1927, is Section 2 of a new North Dakota law effective July 1:

"Any gasoline that shows anti-knock characteristics equal to a blend of 25 per cent benzol and 75 per cent straightrun gasoline from typical Mid-Continent crude oil or its equivalent may be colored by the use of harmless red dye. *Any gasoline not showing the anti-knock characteristics specified above must be sold without the addition of any foreign coloring matter* or shall be of a color as may be required by the current specification for North Dakota motor gasoline."

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Owner of the Dubbs Process
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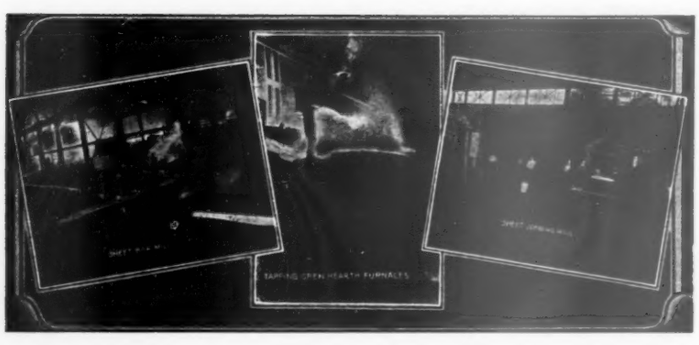


be in a condition that prevents cleaning out the lower portion of the casing. In such an event, after the well has been redrilled, a quantity of explosives is placed at a given point, which should be near the lower end of the casing that has been left in the well. A hole is shot into this casing so as to allow the body of cement to close this opening. In redrilling jobs, as in the original well, holes are likely to be crooked, so that when the cementing point is reached, after the redrilling, the base of the hole may be some distance from the original base. In this case better results will be obtained by shooting twice in the same place. The first explosion has a tendency to tear down the formation between the second hole and the first hole, in which the casing is placed. The second explosion then has a chance to tear a hole in the casing, permitting the cement to plug this opening.

Where redrilling is anticipated, even better results can be obtained by shooting the casing that is to be left in the hole and placing a cement bridge in it before the casing is taken out for the redrilling job. The action of explosives on the casing is sometimes so severe that, after explosives have been used in a well containing casing not yet landed, the casing should be tested by setting it on the bottom and creating pressure with the pumps.

Various ingredients can be mixed with the cement to cause it to set more quickly. In shooting cement into the formation, one should take care that the cement is mixed to a consistency that will preserve its plasticity until the time of the explosion.

In many wells the temperature is very high, so that the pressure to which the cement is subjected and the degree of heat that already exists in the well combine to cause the cement to set more quickly—at least to a consistency that would cause it to be damaged by an explosion rather than forced into the formation.

In plugging wells for abandoning, it is essential to seal the well to prevent the water from invading the oil and gas sands and flowing to adjacent properties. Different localities call for different methods of sealing. Heavy mud is sometimes placed in the well, entirely filling it, but where the casing is partly removed, cement bridges are placed at intervals. Cavities for receiving this cement can be made by ripping the casing at a certain point and bailing the fluid, to allow sufficient formation to be taken out and replaced by cement. Perhaps better results can be secured by shooting the casing at a selected point, as this will allow the cement to close the opening inside and outside the casing left in the hole. Similar methods can be employed when all the casing is recovered, but only in certain districts is this recovery permitted.

INVASION OF WATER AND RECOVERY OF OIL

The invasion of water in the north part of the Cushing oil field, Oklahoma, has played an important part in the recovery of oil from the oil-bearing formations, the United States Bureau of Mines, Department of Commerce, points out in a recently issued report. The rapid decline of initial oil production was not only due to the wasteful depletion of the natural pressure in the sand, but it was also due to the early appearance of water encountered in and below the oil-bearing formations. These conditions were brought about by the too hasty and improper development of the field. As a result, many of the wells in the heart of the field were drilled into water and, with the reduction of natural pressure in the oil sands, the water appeared in the wells. As the water increased, the wells would stop flowing, oil production would often be curtailed or greatly reduced, and it would become necessary either to exclude the water or resort to pumping before production would be appreciably revived.

The water could be excluded in many of the wells, but in others the problem of exclusion was complicated by the inability to determine the source of the water. The subsequent invasion and migration of water in the producing sand further complicated the problem of excluding it and the recovery of oil by pumping excessive quantities of fluid became more difficult. In 1918 several of the larger companies co-operated with representatives of the United States Bureau of Mines in combating the water problem. The use of cement proved effective and it was subsequently adopted by the field operators in shutting off bottom water. The extensive well repair work to exclude water at that time proved beneficial. Following the successful exclusion of water by cementing, the oil production of a large number of wells was increased. Well repair work in succeeding years has kept certain areas comparatively free from water, but in others the complicated water conditions have continued to baffle the ingenuity of production men in their efforts to shut off the water in certain wells. Consequently, wells in these areas, corresponding in general to those on the higher parts of the underground structure and yielding the highest initial production of oil, have continued to produce large quantities of water. The water has spread down dip away from these areas, and probably forces a portion of the oil ahead in the sand toward lower structural areas in the nature of a down dip "water flood" or "drive." A large number of wells and several leases show unmistakable evidence of being beneficially affected by a water drive which has increased the oil production; on others the effects have been detrimental. The ultimate value of such an uncontrolled "down dip" drive is questionable for a number of apparent reasons. A down-dip water drive would not be as effective in replacing the oil in the sand as an up-dip drive would be, and much oil will remain in the sand following the final flooding by water.

ANGLO-PERSIAN OIL GAIN IN PRODUCTION

Crude oil production of Anglo-Persian Oil Co, Ltd., in six months ended September 30, 1926, was 2,310,635 tons. For the year ended March 31, 1927, it is expected figures will show production of 4,750,000 tons, according to advices to the Department of Commerce from Teheran. Crude production in fiscal year ended March 31, 1926, totaled 4,500,000 tons, exceeding production of the preceding year by about 250,000 tons.

Exports of mineral oils from Persia in the Persian year ended March 20, 1926, according to preliminary figures were 3,784,051 metric tons, valued at about $54,466,000. In the three months ended June 20, 1926, oil exports totaled 1,272,299 tons, valued at $18,973,000.

The Persian Ministry of Public Works has transmitted to the Council of Ministers draft of bill extending for 15 years the Svenska-Iran Co.'s concession for a pipe line from Bidjar-Khaleh in the port of Pahlavi to Resht. This concession is about to expire after standing 15 years; its renewal appears probable.

PANHANDLE INCORPORATION

The Antelope Creek Oil & Gas Co. has been incorporated with $150,000 paid up capital by J. M. Sanford, president; P. H. Landergrin, vice president; Ben Golding, secretary, and Roy Pool and R. E. Underwood as directors. It has rig up in the NW cor. of its 160-acre lease, the S half of Section 82, Block 46, of H. & T. C. Survey, in south Hutchinson County.

BUNKER OIL DELIVERY

Fuel oil deliveries for ships bunkers at all United States ports and insular possessions totaled 76,691,000 bbls. during 1926, and represents an increase of 5.6 per cent over 1925. This is exclusive of deliveries to the United States Navy which consumed 6,500,000 bbls. Of the total, the Atlantic ports handled 40.5 per cent, the Gulf ports 20.0 per cent and the Pacific ports 37.7 per cent.

LITTLE VARIATION IN CRUDE STOCKS IN TEXAS AND LOUISIANA

HOUSTON, Tex., Apr. 23.—Stocks of crude oil in the States of Louisiana and Texas, other than such as are held at refineries, total 83,783 500 bbls. on April 1, which is 41.067 bbls. less than reported on March 1, 1927.

The Gulf Coast division has 15.307,825 bbls. in steel and earthen tanks of Coastal crude, and in addition there are 1,859,780 bbls. of light gravity crudes at tank farms in the Coastal region. Compared with March 1 last, Coastal crude in storage shows an increase of 501,130 bbls.

The Southwest fields (Luling, Lockhart and Mirando) have 1,859,780 bbls., or 313,672 bbls. less than on March 1 last.

Very little change is noted in the North Central Texas storage, where the figures show accumulations of 9.404 960 bbls. on April 1, against 9,633,260 bbls. 30 days previously.

The Panhandle and Reagan, Crane, and Upton fields are credited with 15,-565.000 bbls. in storage, of which 13,-565.000 bbls. are in the Panhandle and will soon be moving through the new line of the Humble Oil & Refining Co. and the joint line of the Gulf company and the Magnolia Petroleum Co. The increase in 30 days from March 1 last was 957,-100 bbls.

The North Louisiana districts had 11,147.885 bbls. on April 1, or 187.885 bbls. less than on March 1. The Arkansas fields showed 17.480.840 bbls. on April 1, a decrease of 1,220 070 bbls. in 30 days.

The following table shows the accumulations in each field in each division in the two states:

STOCKS OF CRUDE, APRIL 1, 1927

Gulf Coast Division

Pool—	Steel Tanks	Earthen Tanks
Batson	2.900	.. ....
Barber Hill	1.700	.....
Big Creek	68.460	.....
Dayton	1.450	.....
Damon Mound	18.485	.....
Goose Creek	151.515	113.950
Hull	491.315	2.000
Humble	593.000	2.459,300
Markham	25.360	.....
Orange	176.190	7.800
Pierce Junction	48.325	.....
Spindletop	4,015.395	.....
Saratoga	382.700	.....
Sour Lake	1.982.880	1.814.870
South Liberty	41.500	... .
West Columbia	1.194.965	1.006.035
Jennings (La.)	104.350	.. ....
Lockport (La.)	285.130	.....
Vinton (La.)	318.450	.....
Total, April 1, 1927	9.903.870	5.403,955
Grand total		15.307,825
Grand total, March 1, 1927		14.355,457
Increase		952,368

Miscellaneous

In addition to the stocks of Coastal crude, there are 5 957.615 bbls. of light gravity crudes in storage in tank farms in the Coastal region, compared with 6,063,620 bbls. on March 1.

Southwest Fields

Luling	657.750
Lockhart	5,480
Mirando	1.196,550
Total, April 1	1.859,780
Total, March 1	2.164.500
Decrease	304.720

North Central Texas

Eastland-Stephens Counties	7,901.625
Burkburnett	564.175
Electra	513.620
Petrolia	8.4[illegible]0
Archer County	100.900
Vernon	106.000
Nocona	120.200
Total, April 1	9,404,960
Total, March 1	9.633,260
Decrease	228,300

East Central Texas

Mexia	9,681.860
Powell	2.297,280
Total, April 1	11.979.140
Total, March 1	11.988.710
Decrease	9,570

Panhandle and West Texas

Panhandle	13 565.000
Reagan, Crane, Upton Counties	2,078.060
Total, April 1	15,603,060
Total, March 1	14,645.960
Increase	957,100

North Louisiana and Arkansas

Bull Bayou, Crichton, Shreveport	4,541,110
Haynesville	3,120.200
Homer	2,950.560
Cotton Valley	369.300
Bellevue	156,000
Urania	10,715
Total, April 1	11.147.885
Total, March 1	11.335.760
Decrease	187.885
Smackover (Ark.)	15.181.350
El Dorado (Ark.)	2.112 260
Nevada County	187.230
Total, April 1	17.480.840
Total, March 1	18,700,910
Decrease	1.220.070

Summary

Gulf Coast	15.307,825
Miscellaneous (Gulf Coast)	1,859,780
North Central Texas	9,404.960
East Central Texas	11.979.140
Panhandle-West Texas	15.603.060
North Louisiana	11.147.885
Arkansas	17.480.840
Total, April 1	82.783.490
Total, March 1	82.824,557
Decrease	41,067

Technical Committee Reports to Feature Natural Gas Meeting

Behind the reports that will be read at the twenty-second annual convention of the Natural Gas Association of America at Cincinnati, May 9 to 12, by the various branches of the technical and research committee of the association there will be much hard work and careful thinking. The reports will outline only briefly the results obtained by the members of the committee after exhaustive research and free co-operation.

These reports, Chairman H. J. Hoover, of the Committee on Publicity, says, are all going to be mighty interesting, and one or two of them actually exciting in their relation to the future of our industry.

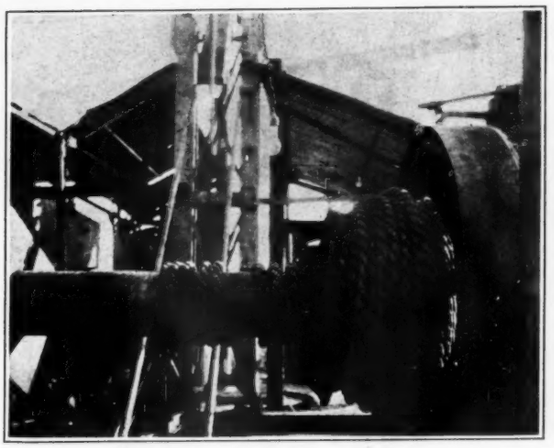
"We do not wish," he says, "to anticipate any of the findings of these committees, but we do know that many are planning to attend the sessions of the various branches of the technical and research committee, to be held in the Hotel Sinton, and listen in on the closing arguments, if any, among the committee members.

"Just a hint of the far-reaching efforts of this important committee is shown in the committee's co-operation with the Association of Natural Gasoline Manufacturers in naming tentative standard methods of testing natural gas for gasoline content. In this case, proposed standards were published in the Natural Gas Association's Code Book No. 1, and this code was transmitted to the industry as a whole with the understanding that modifications would be made in the code after thorough test.

"The methods proposed are now actually being used very widely, especially in the Middle West, but after a great deal of time and study there are a number of modifications that must be adopted if the code is to be as near perfect as the members of the subcommittees desire. These modifications will probably be again thoroughly discussed at the Cincinnati meeting at Hotel Sinton, and then finally adopted, or further improved.

"This is just one small feature of the work carried by the members of the technical and research committee. The members of this committee have called upon many members of the association to help them in the various parts of the careful and painstaking work they have been developing during the past year. All these submembers and many other members of the association will attend the sessions of this important committee while at Cincinnati. The meetings have been so arranged that they will not interfere with the regular sessions of the Natural Gas Association convention.

"Those planning to attend the convention should study the program (published in The Oil and Gas Journal of April 14, page 119), so they may not miss the opportunities afforded to attend the meetings of the technical and research committee."



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In this particular case, the Columbian Cable was used to spud in 12 wells to a depth of 500 feet each. Despite the strain of spudding in the 12 wells, the Cable looks nearly as good as new and the superintendent of the company using it said that it is good for an indefinite time.

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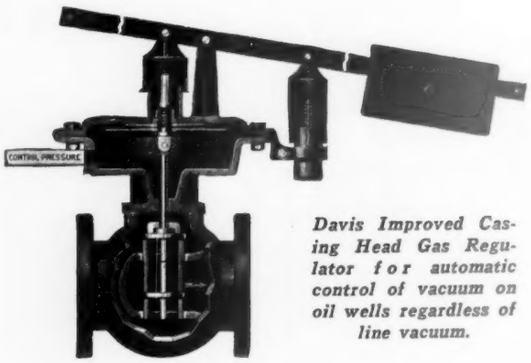

Davis Improved Casing Head Gas Regulator for automatic control of vacuum on oil wells regardless of line vacuum.

'Way up in the thousands

THE list of users of Davis Casing Head Gas Regulators is practically a list of the active oil companies. The number of installations runs into the thousands and many of these Regulators have been in service for five or six years, or more.

Davis Improved Casing Head Regulators automatically control vacuum on oil wells in the manufacture of gasoline. They may easily be converted to operate as low pressure, back pressure or relief valves by changing the position of the counterweight.

High velocity flow doesn't affect the action of this Regulator. Extremely accurate regulation can be secured by a simple installation, taking an equalized controlled vacuum from the line a short distance from the valve.

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APRIL OPERATIONS IN STEEL MILLS AVERAGING AROUND 90 PER CENT

By B. E. V. Luty

PITTSBURGH, Pa., Apr. 25. — Demand for steel products as a whole has been decreasing week by week since late in March and is now well below the March average. A few lines have experienced some increase or at least have had an even break while in most lines the decrease has been quite substantial. While it might be thought that the seasonal influence at this time of year would be in the direction of increasing demand, the experience of the past three years has been otherwise, the heaviest demand coming early in the year, while March was the peak month in production.

There is no longer any doubt about March proving to be the high month for some time to come. As reported a week ago, last month's steel ingot production made a new high record for a month by 1.6 per cent, and production is already very materially less. March production was computed to be at 94 per cent of capacity, and April is closing with a rate well below 90 per cent, there being doubt whether the month as a whole will average as much as 90 per cent.

Operations in March

The decrease in buying is marked in the case of sheets. Independent sheet mills had a "mechanical operation" in March of 89.5 per cent, i.e., they ran 89.5 per cent of the full time possible, and with production in the month of 359,340 net tons, they sold 345,900 net tons while they shipped only 338,436 net tons. This month there is a reaction from these high rates. Automobile steel demand is running as heavy as can be expected for any time this year, but is distinctly unsatisfactory. Production of passenger automobiles and trucks in February and March ran about 15 per cent under production in the same months of last year.

Demand for merchant steel bars has decreased somewhat from the very high rate of February and March, but is still fairly heavy. Plates and shapes make approximately the same showing.

Rail shipments are decreasing somewhat as there were very heavy shipments in the first three months of the year, against contracts placed for the half year. The secondary rail buying season, to round out the year, is due in a month or two.

Tin plate mill operations have decreased a trifle farther, being now at nearer 80 than 85 per cent, against above 95 per cent for a short time early in the year. Shipments have been very heavy against six-month contracts and there is scarcely any new buying.

The wire trade has been showing a moderate seasonal improvement in the past few weeks, but is no more active now than a fortnight ago. Prices are well held, except for the familiar shading in some sections of the South.

There have been no quotable declines in steel prices for two months or more, but in several lines the market is a shade easier. In bars, shapes and plates special prices made to the largest trade are now extended to include some of the more moderate sized buyers. Carload prices are unchanged, bars, shapes and plates being 1.90 cents on single carloads unless the specifications are decidedly unattractive.

Pipe Trade

The three principal branches of the pipe trade show a wide variety, line pipe demand being very heavy, other oil country goods being in decidedly poor demand and merchant or standard pipe being in moderate demand. While the large line pipe orders reported at intervals in the past few months have run almost entirely to large sizes, there has been much business in smaller sizes, chiefly for gathering lines for natural gas, down to 4-inch. It is estimated roughly that these gathering lines take about one-fourth as much tonnage as the main or trunk lines.

Demand for casing and other well material is decidedly poor. It may have even decreased somewhat in the past 30 days and it certainly has had no seasonal increase, making a sharp contrast with conditions a year ago when demand was very heavy. Lap weld operations average close to 90 per cent and butt weld about 60 per cent, making a general average of about 75 per cent. Prices are being rigidly held, according to all accounts.

The bituminous coal strike has amounted to little thus far but has not yet shown what it can do, as much more striking in nonunion fields is to be expected. Connellsville coke is dull and weak, while Valley pig iron is dull and steady.

PRESIDENT J. L. WEEKS REPORTS ON MARACAIBO

John L. Weeks, president, in the annual report of the Maracaibo Oil Exploration says:

"There still remain five zones on which the government of Venezuela has not yet issued to your corporation the final certificates of exploitation. When these have been issued Maracaibo will own all the oil and gas rights on approximately 287,000 acres, and in addition will have a one-third working interest in 80,000 acres held for development by the Standard Oil Co. of New Jersey and a 10 per cent royalty interest in the oil and gas produced from the 108,000 acres sold to the Gulf Oil Corp.

"Most of these holdings and interest, in all 475,000 acres, are located in the Maracaibo Basin and are all prospective oil territory. The only substantial areas of land owned by your corporation outside the Maracaibo Basin are two tracts comprising approximately 25,000 acres in the District of Democracia, State of Falcon. Oil in commercial quantities and of good quality was discovered in this district in the latter part of 1926, and it is very probable that active development will be carried on there during the year 1927.

"The well drilled by the Standard Oil Co. of New Jersey located, on acreage owned jointly with them in the District of Perija, was drilled to a depth of 3,400 feet and abandoned last October. The recent activities of hostile Indians, together with the remoteness of the region, have made development more than usually difficult. The Gulf well mentioned in the last annual report located on acreage purchased from us in the District of Miranda was drilled to 3,400 feet. At this point they met with casing difficulties, and after considerable time and effort spent upon these they decided to recommence drilling at about 2,400 feet. The Gulf will probably start another well in this district on a location not far from their former attempt. They are also drilling a well in the District of Mara, located between our zones No. 1 Mara and No. 2 Paez. The successful outcome of this well should have an important bearing on the potential values of your properties."

UNIVERSITY ROYALTIES

AUSTIN, Tex., Apr. 23.—A check for $16,888 was received in oil royalties by Land Commissioner J. T. Robison from the Humble Oil & Refining Co., operating on University of Texas lands in Crane and Upton Counties. The money will be deposited to the credit of the permanent fund of the University of Texas. The university royalty fund now totals $5,565,661. Approximately $150,000 more will be received, which will bring the total to more than $5,700,000. With this money United States Liberty bonds are purchased, which yield less than 4 per cent. The interest, amounting to $500,000 a year, can be spent by the university for building purposes, but the principal must remain untouched in the permanent fund.

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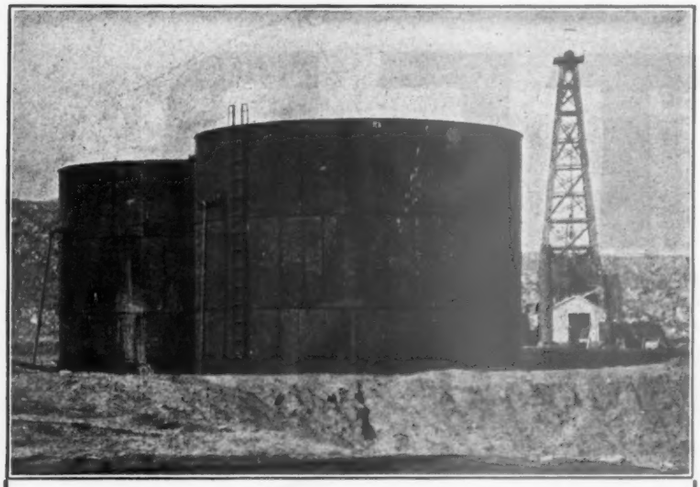

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Distributors at All Principal Petroleum Points.

Sizes: 12 to 3,000 Barrels.

Packed in Steel-Bound Crates for Export

Howell Aluminum "3-in-1" Vacuum Pressure Valve and Thief-Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety.

MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANK

MADE OF KEYSTONE COPPER STEEL

MALONEY

MALONEY

A. P. I. APPOINTS COMMITTEES TO INVESTIGATE OIL POLLUTION

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 23.—Investigations of oil pollution conditions are now being carried on by committees just appointed by E. W. Clark, president of the American Petroleum Institute, covering various branches of activity and the different sections of the country. In announcing the personnel of the committees, the Institute makes the following statement:

"At the American Petroleum Institute's seventh annual meeting in Tulsa, the board of directors adopted a resolution bringing strongly to the attention of the petroleum industry the need for definite and prompt action being taken to eliminate existing oil pollution emanating from the oil industry's plants, pipe lines, oil handling equipment, etc. At the same time, the board empowered the president to appoint committees to investigate oil pollution conditions and to initiate remedial measures. These committees have been appointed, with Robert F. Hand, chairman of the general committee on oil pollution, as the active head of the investigations which are being carried on.

"The United States has been divided into six sections, namely: Atlantic Coast, Gulf Coast, Great Lakes, Mid-Continent, Rocky Mountain and Pacific Coast sections. In each of five sections, three engineers have been appointed to conduct the survey. In the Gulf Coast section, because of existing peculiar conditions, four engineers make up the committee. Each sectional committee will be divided into districts with one of the sectional committeemen in charge. District, sub-district, and local committeemen will make the investigations for their localities, and the findings will be reported to the president of the American Petroleum Institute in order that the proper presentation of the subject may be made to whatever public authorities may be dealing with the matter of oil pollution.

"All the companies in the industry to date which have been called upon to supply the services of their executives and engineers in making this investigation have given the heartiest sort of co-operation. Practically every oil company in the United States will be called upon in the near future for either the services of one or more of its men, or to make available for inspection their plants, loading stations, etc. Anything that can be done to facilitate the work of these sectional district and local committees will be of vital help in finding the answer to one of the problems which confronts the industry today."

The personnel, together with company connections, of the sectional committees on oil pollution are as follows:

Atlantic Coast Section—William A. Courtnay, Jr., Sun Oil Co., Philadelphia, Pa.; E. R. Cox, Atlantic Refining Co., Philadelphia, Pa.; F. W. Miller, Standard Oil Co. of New Jersey, New York City.

Mid-Continent Section—E. E. Swope, Magnolia Petroleum Co., Beaumont, Tex.; F. B. Koontz, Mid Continent Petroleum Co., Tulsa, Okla.; H. W. Camp, Empire Refiners, Tulsa, Okla.

Gulf Coast Section—R. G. Hamaker, Humble Oil & Refining Co., Houston, Tex.; A. S. Patrick, The Texas Company, Port Arthur, Tex.; George N. Bliss, Gulf Refining Co., Port Arthur, Tex.; Claude F. Reynaud, Standard Oil Co. of Louisiana, Baton Rouge, La.

Great Lakes Section—W. E. Warner, Vacuum Oil Co., Olean, N. Y.; J. E. Evans, Standard Oil Co. of Indiana, Whiting, Ind.; J. S. Hess, Sinclair Refining Co., New York City.

Rocky Mountain Section—F. R. Russel, Continental Oil Co., Denver, Colo.; A. W. Peake, Midwest Refining Co., Denver, Colo.; Frank McCarthy, Producers & Refiners Corp., Denver, Colo.

Pacific Coast Section—A. S. Russel, Standard Oil Co. of California, San Francisco, Calif.; G. N. Van Senden, Shell Co. of California, Martinez, Calif.; C. E. Simpson, General Petroleum Co., San Francisco, Calif.

TWO TEXAS FARMERS HOLD TORSION BALANCE

A Midland, Tex., correspondent of the Fort Worth Star-Telegram reports the Roxana Petroleum Corp. is in a pickle.

One of its torsion balance machines is tied up in Glasscock County and the Roxana Petroleum Corp. and its parent company, Royal Dutch Shell, the sheriff and five deputies of Glasscock County can't get it.

Two stalwart farmers, Bill and Charlie Skeen, day and night guard the small house in which the torsion balance machine is housed. They are unarmed, but are quite determined in refusing to let the oil detecting machine be removed and it has been idle a week. The sheriff of Glasscock County and five deputies came to get the structure detector, but when the Skeen brothers asked the sheriff to produce his papers, he admitted he had none and left.

The Skeen brothers own 640 acres. They say their land is posted and declare they gave no permission for Roxana to place a "doodle bug" on their land. They first demanded $10 an acre damages for removal of the machine. Their cousin, Charlie McClintic, rancher with adjoining land, got the Skeen brothers to agree to a compromise of $4,500, but Roxana refused to pay more than $5 an acre for the 160 acres on which the machine is stationed.

As the case now stands, one of the world's largest petroleum corporations is checkmated by two West Texas farmers. Roxana employes say the delay is costing $1,000 a day. Court action is threatened.

Skeen brothers say they do not wish to cause Roxana unnecessary trouble, but they believe, since Roxana refuses to lease their land that the record obtained by this detector may condemn their land in the eyes of prospective drillers, and they make their claim of $10 an acre lease, or the compromise price of $4,500 as a means of obtaining damages.

Oil men declare the torsion balance record can establish merit for nor condemn no particular small tract, as wide soundings must be made to determine formation with any degree of accuracy.

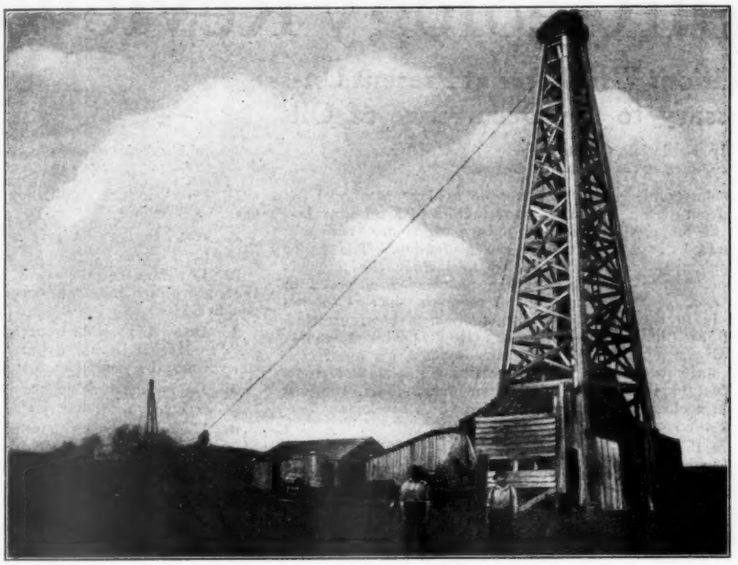
OIL IN DOMINICAN REPUBLIC

It is generally considered doubtful whether oil shale deposits of commercial importance exist in the Dominican Republic. One deposit, known as the Axua oil field, is north of the town of Azua where seepage has been observed and several holes have been drilled, some of them producing oil. The deepest well is said to have reached 400 meters. The earlier wells yielded oil up to several hundred barrels a day. The difficulty with exploitation is that deep drillings were followed by an inundation of sea water. The oil obtained is reported to be dark brown, very liquid and of high gravity, and is said to yield no gasoline.

Oil has also been reported in the vicinity of Bani in the Province of Santo Domingo, and near Ocoa Bay, but no investigations have yet established its presence.

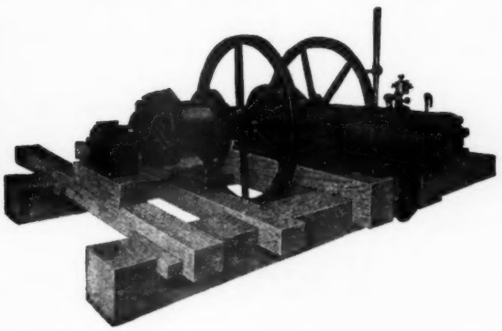
FRENCH OIL MONOPOLY DELAYED

The French government has decided to postpone for at least two years the application of the Margaine law, which established a state monopoly of gasoline and other oil products.



GAS *Drilling Engine*

Sizes for Mid-Continent and Western Service $1725 and $2150 F.O.B. Factory. Sizes for Eastern Service $1450 and $1725 F.O.B. Factory.



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Repairs. Bills!

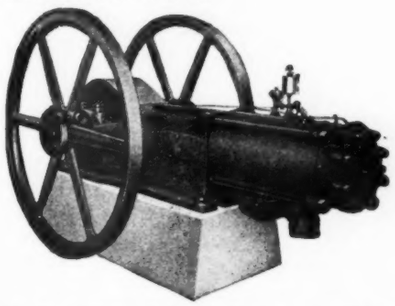
In territories where gas is plentiful and cheap, your Franklin Oil Engine can be converted into a gas engine, in two hours—simply by changing cylinder heads and replacing the fuel pump with a magneto. The result is the most efficient gas engine made. The Gas Engine has another big advantage—*Interchangeability*. 25-30 H.P.—40 H.P.—50 H.P.—60 H.P. Gas Engines are all interchangeable on the same block. Should you so desire you can replace your drilling engine with one of less horse power for pumping without changing a single bolt.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Penna.

Oil Well Supply Company
Distribution through its 100 branches

Even though Franklin Valveless Engines can be set up and operated successfully by an inexperienced crew, our distributors will furnish upon request a factory mechanical expert to demonstrate and assist in the economic use of these power plants.

This is the Franklin Gas Engine for Drilling. After the hole is brought in you can move it on to the next job and hook up a Franklin Gas Pumping Engine, operating at an even lower cost.



This Gas Pumping Engine is similar in construction design to the drilling engine and is interchangeable on the same block with it. These engines can show you a power, speed and flexibility almost unbelievable.

LESS ENGINES

Present Stage of Oil Geology Reviewed

Statement of Conditions Which Are at Present Understood as Necessary to the Occurrence of Oil

By Frederick G. Clapp*
Consulting Geologist and Petroleum Engineer

In the past it has been customary to preface most discussions on the oil prospects of any region by a more or less extended outline of the conditions which are understood as being necessary to oil occurrence. The essentials were stated long ago as being threefold, viz.: (a) a porous reservoir to hold the oil, (b) an impervious cover to prevent its escape and (c) some form of geologic structure suitable for concentration of the oil in commercial quantity in a restricted area. These conditions have generally been considered fundamental and they may still be so considered; but the progress of our science has been rapid and the previously recognized three fundamental criteria have been added to from decade to decade, so that we are no longer satisfied with those once enumerated. Instead, there is an array of fundamental and secondary factors in oil occurrence little thought of a few years ago.

The purpose of this paper is to set forth the criteria recognized at this writing, with the hope that discussion will elaborate the subject. A statement of the criteria is believed important in connection with a symposium on geologic structure, in order to counteract the common tendency to over-emphasize the importance of structure in connection with any particular province or investigation.

This paper should be considered as a review of the present stage of oil geology; hence no apology is offered for including many factors of a more or less rudimentary nature which are commonly accepted by the profession. The paper is not intended to include the methods of work or the phenomena observed in any methods of research, such as torsion balances, seismographs, magnetic or electrical methods. Geophysical instruments are, for the purpose of this paper, considered as constituting methods of work, as are also clinometers, stadia, compass and other facilities which are instruments rather than criteria.

Fundamental Geologic Criteria

The fundamental criteria which should generally be applied in searching for an oil or gas field in an untested region are considered to include the following:

1. Do "surface indications" (seepages, etc.) exist?

2. Are the rocks of sedimentary origin?

3. Is the age of the strata similar to that prevailing in some existing oil or gas field?

4. Does a possible source of origin exist? If this be not apparent, may it nevertheless be present?

5. Do porous beds exist in which oil may be held in commercial quantity?

6. If so, does sufficient "cover" exist above these beds to prevent oil or gas from escaping to the surface and being lost?

7. Are the strata so slightly metamorphosed by heat or pressure that the

(Continued on Page 112)

*Before the American Association of Petroleum Geologists, Tulsa meeting, March 26, 1927, and printed by The Oil & Gas Journal by permission of the Association.

Official Record of Gasoline Taxes Collected During 1926

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., April 2.—The total taxes collected on the sale of gasoline by 44 states during 1926 amounted to $187,603,231.

The accompanying table showing gasoline taxes for 1926 was prepared by the Bureau of Public Roads, Department of Agriculture, and has just been released for publication.

Of the total amount of gasoline tax collected, $129,441,520 was spent for construction and maintenance of state highways; $43,609,479 was for local roads; $5,237,869 was for state and county road bond payments, and $9,074,463 was for miscellaneous purposes.

For these miscellaneous purposes the State of Ohio expended $3,977,180 for repair and maintenance of municipal streets.

The State of Georgia expended $1,613,983 for state general treasury funds; the State of Texas expended $1,306,721 for the free school fund, and the District of Columbia expended $1,015,193 for improvement and repair of the streets of Washington, D. C.

Maryland spent $458,271 for maintenance of Baltimore streets. Mississippi spent $103,255 for a sea wall to protect the state highway in Harrison County. Montana spent $262,003 for the state general treasury fund. North Dakota spent $168,392 for the state general fund, and the State of Pennsylvania spent $169,498 for that purpose.

Only four states were without a gasoline tax in 1926, these being Illinois, Massachusetts, New Jersey and New York.

Two states, Kentucky and South Carolina, had a tax of 5 cents per gallon and only two states, Rhode Island and Texas, assessed the tax as low as 1 cent. The average taxation of all the states was 2.38 cents per gallon.

The net gallons of gasoline taxed and used by motor vehicles were 7,883,983,560. The estimated additional gallons used by motor vehicles and not taxed was 1,905,000,000.

The cost of collecting these gasoline taxes was $238,897.

GASOLINE TAXES, 1926

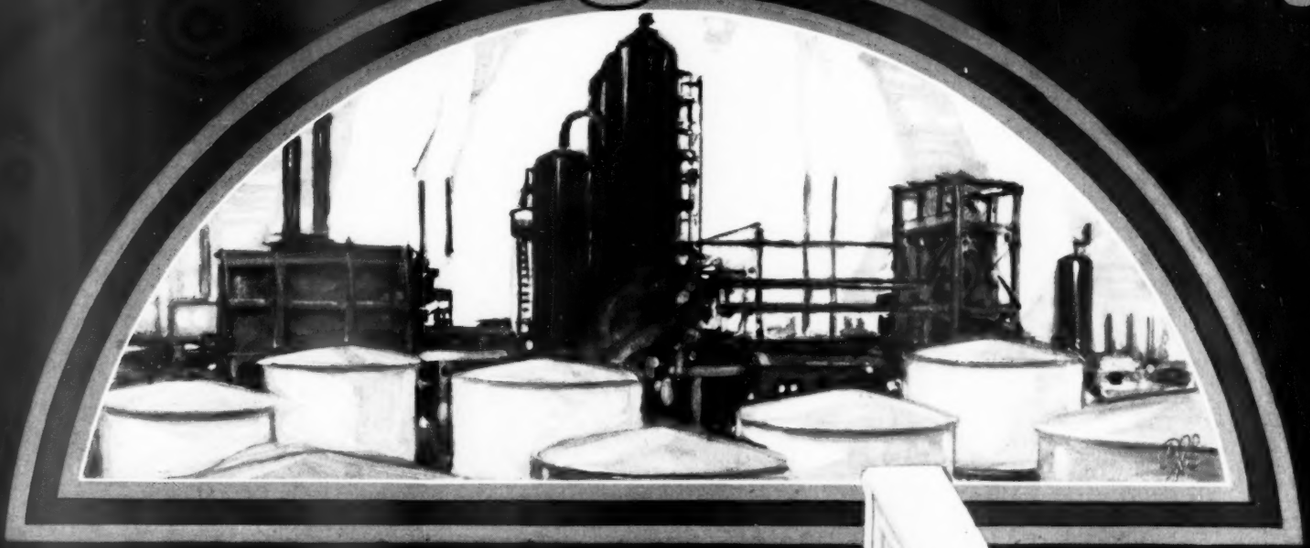
Total Taxes Earned on Motor Vehicle Fuel, Refunds on Gross Tax, Disposition of Fund and Gallons of Taxed Gasoline Consumed.
Data compiled by United States Department of Agriculture, Bureau of Public Roads

States and District of Columbia—	Gross Tax Assessed Prior to Deduction of Returns	Exemption Refunds: (Deduct from Gross Tax)	Total Tax Earnings on Fuel for Motor Vehicles (1)	Disposition of Total Tax Earnings: Collection Costs (2)	Construction and Maintenance on Rural Roads: State Hwys.	Local Roads	State and County Road Bond Payments	For Miscellaneous Purposes	Tax Rates, 1926—Cents per Gallon: Jan. 1	Dec. 31	Date of Rate Change	Net Gallons of Gasoline Taxed and Used by Motor Vehicles
Alabama	$2,568,651	.....	$2,568,651	$9,582	.....	$2,549,069	.....	.....	2	(3)2	.....	127,932,538
Arizona	1,206,660	$228,396	978,264	.....	$489,132	489,132	.....	.....	3	3	.....	32,608,821
Arkansas	3,785,304	200,000	3,585,305	.....	1,991,834	684,488	(4)$908,982	.....	4	4	.....	89,632,594
California	17,910,077	1,407,954	16,502,123	.....	8,251,062	8,251,062	.....	.....	2	2	.....	825,106,169
Colorado	2,169,456	77,707	2,091,749	(5).....	1,045,875	1,045,874	.....	.....	2	2	.....	104,587,160
Connecticut	2,689,372	.....	2,689,372	.....	2,689,372	.....	.....	.....	2	2	.....	134,468,607
Delware	329,209	8,895	320,414	.....	320,414	.....	.....	.....	2	2	.....	16,520,887
Florida	11,431,486	.....	11,431,486	8,400	8,567,315	2,855,771	.....	.....	4	4	.....	285,787,156
Georgia	5,653,140	.....	5,653,140	4,200	2,420,974	1,613,983	.....	(6)$1,613,983	3½	3½	.....	161,518,296
Idaho	1,182,584	60,367	1,122,217	6,820	1,115,397	.....	.....	.....	3	3	.....	37,403,986
*Illinois	.....	.....	.....	.....	.....	.....	.....	.....	0	0	No tax	.....
Indiana	9,213,828	242,087	8,971,741	11,902	5,973,226	2,986,613	.....	.....	3	3	.....	299,058,025
Iowa	5,020,086	177,659	4,842,427	10,736	1,610,564	3,221,127	.....	.....	2	2	.....	242,121,370
Kansas	4,406,653	103,265	4,303,388	(7).....	3,576,210	727,178	.....	.....	2	2	.....	215,169,393
Kentucky	4,935,078	.....	4,935,078	(8).....	4,935,078	.....	.....	.....	3	5	2–21/26	103,477,665
Louisiana	2,708,567	.....	2,708,567	.....	2,708,567	.....	.....	.....	2	2	.....	135,428,367
Maine	1,864,596	(9)41,250	1,823,346	10,069	1,511,064	302,213	.....	.....	3	3	.....	60,090,659
Maryland	2,357,577	63,723	2,293,854	2,500	1,833,083	.....	.....	(10)458,271	2	2	.....	114,692,672
*Massachusetts	.....	.....	.....	.....	.....	.....	.....	.....	0	0	No tax	.....
Michigan	10,758,109	676,333	10,081,776	23,737	4,764,422	(11)1,211,557	4,082,060	.....	2	2	.....	504,088,814
Minnesota	5,072,854	268,166	4,804,688	(12).....	4,804,688	.....	.....	.....	2	2	.....	240,234,382
Mississippi	(13)1,088,200	.....	4,088,200	3,150	1,940,186	1,930,912	(14)50,727	(13)103,225	3	4	4/1/26	105,887,426
Missouri	5,777,163	116,018	5,661,145	54,698	5,606,447	.....	.....	.....	2	2	.....	283,057,270
Montana	870,712	.....	870,712	.....	131,002	477,707	.....	(6)262,003	2	(15)2	.....	43,535,576
Nebraska	3,065,765	15,778	3,049,927	7,028	3,032,899	.....	.....	.....	2	2	.....	151,996,357
Nevada	433,820	28,002	405,818	.....	202,909	202,909	.....	.....	4	4	.....	10,145,454
New Hampshire	781,453	12,871	768,582	.....	768,582	.....	.....	.....	2	2	.....	38,429,100
*New Jersey	.....	.....	.....	.....	.....	.....	.....	.....	0	0	No tax	.....
New Mexico	762,851	.....	762,851	25,428	737,423	.....	.....	.....	3	3	.....	25,428,358
*New York	.....	.....	.....	.....	.....	.....	.....	.....	0	0	No tax	.....
North Carolina	8,113,044	326,571	7,786,473	.....	(16)7,786,473	.....	(16).....	.....	4	4	.....	194,661,825
North Dakota	1,083,531	95,038	988,493	.....	820,101	.....	.....	(6)168,392	1	2	7/31/26	73,689,462
Ohio	13,556,253	298,987	13,257,266	.....	5,965,770	3,314,316	.....	(17)3,977,180	2	2	.....	662,863,296
Oklahoma	6,237,989	(18)25,580	6,212,409	(19).....	4,141,606	2,070,803	.....	.....	3	3	.....	207,080,296
Oregon	3,536,142	202,313	3,333,829	7,693	3,326,136	.....	.....	.....	3	3	.....	118,493,937
Pennsylvania	(20)11,781,782	.....	11,781,782	.....	8,709,213	2,903,671	.....	(6)169,498	2	2	.....	588,379,021
Rhode Island	629,024	117,128	511,896	(21).....	511,896	.....	.....	.....	1	1	.....	51,189,641
South Carolina	4,505,694	8,726	4,496,968	(21).....	2,698,181	1,798,787	.....	.....	5	5	.....	89,939,353
South Dakota	2,284,761	360,003	1,924,758	.....	1,924,758	.....	.....	.....	3	3	.....	64,158,588
Tennessee	3,852,524	.....	3,852,524	38,525	3,813,998	.....	.....	.....	3	3	.....	128,417,453
Texas	5,228,609	1,123	5,226,886	.....	3,920,164	.....	.....	(22)1,306,721	1	1	.....	522,688,578
Utah	1,258,009	.....	1,258,009	3,750	1,057,159	.....	197,100	.....	3½	3½	.....	35,943,117
Vermont	553,093	.....	553,093	(23).....	553,093	.....	.....	.....	2	2	.....	27,654,594
Virginia	6,158,124	302,454	5,855,670	(24)..... 697	3,903,316	1,951,657	.....	.....	3	4½	3/11/26	135,814,061
Washington	3,701,676	219,583	3,482,093	(25).....	3,482,093	.....	.....	.....	2	2	.....	174,104,636
West Virginia	3,001,131	78,456	2,922,675	(26).....	2,922,675	.....	(27).....	.....	3½	3½	.....	64,158,588
Wisconsin	5,373,667	163,862	5,209,805	9,982	2,238,574	2,961,250	.....	.....	2	2	.....	260,490,262
Wyoming	571,449	2,860	568,589	.....	568,589	.....	.....	.....	2½	2½	.....	22,743,572
District of Columbia	1,020,050	4,857	1,015,193	.....	.....	.....	.....	(28)1,015,193	2	2	.....	50,759,671
Totals	.....	.....	187,603,231	238,897	129,441,520	43,609,479	5,238,869	9,074,466	Aver.	2.38	.....	7,883,983,560

*Estimated gasoline in four states which do not have gasoline tax is as follows: Illinois, 650,000,000 gallons; Massachusetts, 280,000,000 gallons; New Jersey, 235,000,000 gallons; and New York, 720,000,000 gallons. Total, 1,905,000,000 gallons.

Notes: (1) This is the net tax after deduction of refunds for exemptions according to law and represents the actual taxes available for disposal; The first two columns show only the procedure and are not totaled, being of minor importance. (2) Collection costs in many states are paid from other state funds, and when amounts and sources are reported notes are entered below. (3) Changed to 4 cents on January 4, 1927. (4) Allotted by appropriation out of gasoline tax fund, but claims exceed this by $225,000. (5) Collection costs charged to State controller's office fund. (6) For State general treasury fund. (7) Paid $8,750 from general revenue of State. (8) From general State fund. (9) Refund of 2 cents only, allowed by law. (10) For maintenance of Baltimore streets. (11) "State rewards" to counties. (12) Paid from oil inspection appropriation. (13) Includes $103,225 from extra 2-cent tax collected from Harrison County for sea-wall to protect State highway in this county. (14) Sea-wall bonds. (15) Changed to 3 cents on January 1, 1927. (16) Large part of State highway share is paid for interest and sinking fund on State highway bonds. (17) For repair and maintenance of municipal streets. (18) Deduction of 3 per cent allowed for evaporation. (19) Paid $17,616 from State funds. (20) Includes $14,702 from delinquent 1-cent taxes due in 1921-23. (21) State appropriation of $5,000. (22) For free school fund. (23) Collection cost of $500 from Motor Vehicle Bureau appropriation. (24) Only part of cost; remaining cost of $5,803 is from State appropriation. (25) From motor vehicle license fund, $5,000. (26) State appropriation of $7,500. (27) State road bond payments taken from gasoline tax; amount not reported. (28) For improvement and repair on Washington streets.

pointing the way



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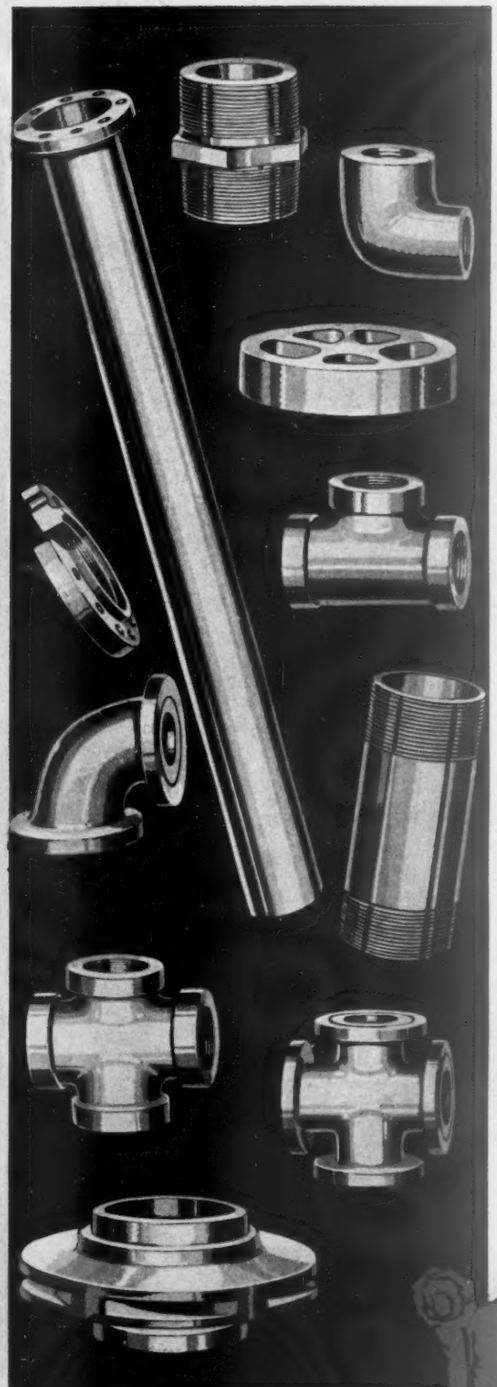
CORROSION RESISTING ALLOYS WITH THE STRENGTH OF STEEL
for anything that can be cast or forged

More Than Ever

providing the Specific Alloy for the Corrosion Problems of Industry



MORE than ever—engineers are giving their attention to the *economic* side of combating corrosion and erosion—the ever present problem of production in the petroleum industry.

With the crude oils of today running high in sulphur and magnesium choloride content and with many other active forces of corrosion, erosion and oxidation hampering operations, this condition needs more than ever before to be offset. Higher temperatures and pressures, too, are making urgent the demand for alloys that will stand up under severe service, if conservation in terms of "greater efficiency" are to be obtained.

It is a matter of history and record that Hills-McCanna were among the first foundry men to give this subject the serious attention it deserves.

Pioneering, yet at all times *co-operating* with engineers in the petroleum industry to secure greater results, has been the basis of Hills-McCanna development and success.

Hills-McCanna have claimed, and always will contend, that it is folly to represent any one alloy as a "cure-all" for every corrosive condition. By broadening out our line, and always supplementing laboratory findings with field tests—we have developed a series of alloys that have served successfully in practically every branch of the petroleum industry.

Our research department, with a fund of "application" experience gained through 57 years of non-ferrous alloy manufacture, is ready to co-operate with you. Make use of it.

FOUNDERS
OF NON-FERROUS ALLOYS
SINCE 1870

HILLS-McCANNA CO. 2025 ELSTON AVE. *Chicago*

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 42)

COLLINGSWORTH COUNTY

Harmon & Deems' No. 1 Wilson (Scott), Sec. 44, Blk. 21.. Location.
Wischkamper's No. 1 fee, C SE Sec. 93, Blk. 16..... Drilling 2,249 ft.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, 47½..... Fishing 2,870 ft.
Harry Skelly et al's No. 1 Capitol Synd., Sec. 19, Blk. 17.. Shut down 2,420 ft., casing trouble.
Marland Oil Co. et al's No. 1 Capitol Syndicate, Sec. 36, Blk. 18, Capitol Syndicate land..... Shut down 950 ft.

DEAF SMITH COUNTY

Julian & DeGrace's No. 1 Mrs. R. A. Hindley, Sec. 47, Blk. K-8..... Shut down 520 ft. for casing.
Red Hill Oil Corp.'s No. 1 Barrett, Sec. 93, Blk. K-4..... Shut down 710 ft.

DONLEY COUNTY

A. T. Drilling Co.'s No. 1 F. E. Harington, Sec. 39, Blk. 3-C ..... 1,200 ft. water from 3,115-22 ft.; show gas 3,140-60 ft.; dry granite wash 3,260-93 ft.; drilling ahead.

GRAY COUNTY

Archer, Blai ... et al's No. 1 Turneau, Sec. 111, Blk. 2-B.. Spudded and shut down.
Amos et al's No. 1 Crews, NW cor. Sec. 9, Blk. 25..... Drilling 715 feet.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-T ..... Total depth 2,666 ft.; gas shut in and work suspended.
Blackwell & McGee's No. 1 Bowers, Sec. 92, Blk. 2-B.... Flowing 65 bbls. and 9,000,000 ft. gas from granite wash 2,965-74 ft.; deepening, trying to recement 6⅝-in. casing.
British-Amer. O. Co.'s No. 1 J. E. Meers, Sec. 107, Blk. 3.. 58,000,000 ft. gas and slight spray oil; fishing bit 3,190 ft.
British American Oil Co.'s No. 1 J. M. Patton, Sec. 61, Blk. B-2 ..... Rigging up.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1..... Shut down 3,505 ft. for repairs.
Jack Doyle's No. 1 D. W. Osborne, SE cor. Sec. 109, Blk. 3 ..... Rig.
Edwards et al's No. 1 E. J. Case..... Building rig.
Empire G. & F. Co.'s No. 1 W. C. Archer, SW cor. NE Sec. 174, Blk. 3..... Drilling 2,900 ft.
Empire G. & F. Co.'s No. 1 J. F. Meers, NE cor. SE Sec. 107, Blk 3 ..... Shut down 2,292 ft. for repairs.
Empire G. & F. Co.'s No. 1 J. J. Wall, Sec. 161, Blk. 3.... Total depth 2,930 ft.; shut down; 43,000,000 ft. gas; closed in.
Empire G. & F. Co.'s No. 1 Webb, SW cor. Sec. 59, Blk. 25 ..... Show of oil 2,457 ft.; drilling dry granite wash 2,885 ft., or 273 ft. below sea level.
Foster et al's No. 1 G. Cutebank, SW cor. NE Sec. 65, Blk. 25 ..... Drilling 1,975 ft.
Gray County Pet. Co.'s No. 1 Herndon, Sec. 147, Blk. 3... Shut down 2,405 ft. for water.
Gulf Production Co.'s No. 1 J. M. Saunders, Sec. 40, Blk. 3 ..... Swabbed 25 bbls. of 40.9 gravity oil at 3,066 ft.; total depth 3,075 ft.; cleaning out.
Humble O. & R. Co.'s No. 1 T. B. Haggard, SW cor. Sec. 112, Blk. 3..... Total depth 3,192 ft.; 2,000 ft. oil in hole from sandy lime 3,159-92 ft.; shut down for storage.
John G. Lane's No. 1 A. Chapman, Sec. 19, Blk. A. C. & H. B. Sur. ..... Total depth 3,300 ft.; 5 3/16-in. casing parted; now pulling.
Magnolia Pet. Co.'s No. 1 fee, Sec. 11, Blk. 3..... 1,800 ft. oil in sandy lime 2,955-87 ft.; shot 120 quarts; total depth 3,004 ft.
Neudigate et al's No. 1 A. Chapman, NE cor. E ½ SE Sec. 52, Blk. 25..... Shut down.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3... Fishing for 15½-in. pipe 420 ft.
Pampa Pet. Co.'s No. 1 Mary Leopold, Sec. 141, Blk. 3... Shut down 3,450 ft.; 1,500 ft. of water from 3,320-60 ft.
Purple Sage Oil Co.'s No. 1 Johnson, Sec. 8, Rockwell County school land..... Shut down 1,960 ft.
Riley & Heck's No. 1 Mrs. Hopkins, Sec. 66, Blk. 2-B.... Shut down 2,900 ft.; rig burned, rebuilding rig.
Rensoul Pet. Co.'s (was Salisbury & Reynold's) No. 1 M. Huselby, C SE NE NE Sec. 55, Blk. 25, H. & G. N. ..... Spudding.
C. B. Shafer's No. 1 G. Cole, SE cor. W ½ SW Sec. 105, Blk. 3 ..... Standardizing 2,526 ft.
The Texas Company's No. 1 J. B. Barrett, NE cor. NW NW Sec. 130, Blk. 3..... Drilling 2,240 ft.
The Texas Company's No. 3 Saunders, C E ½ Sec. 3, B. & B. Sur. ..... 11,000,000 ft. gas 2,395-2,415 ft.; shot 120 quarts 2,550-80 ft.; cleaning out; 12,000,000 ft. gas at 2,535 ft.; recementing 6⅝-in. casing.
Travis et al's No. 1 J. Back, Sec. 44, Blk. 25..... Shot with 120 quarts at 2,650-80 ft.; drilling 2,715 ft.; no oil; touched pay at 2,845 ft.; flowing 100 bbls. per hour.
J. Williams et al's No. 1 C. W. Bradford, Sec. 123, Blk. B-2 ..... Rig blown down.

HARTLEY COUNTY

Amerada Pet. Corp.'s No. 1 Frances Farwell, Sec. 27, Blk. 16..... Drilling 3,310 ft.
Deep Rock Oil Co.'s No. 1 Lyman & Balfour, Sec. 9, Blk. 2 ..... Drilling 2,296 ft.
Eslick et al's No. 1 J. B. Irving, Sec. 13, Blk. 12..... Drilling 2,610 ft.
J. E. McKanna's No. 1 E. S. Collins, Sec. 3, Blk. LS..... Shut down 3,500 ft.; contract depth.
J. E. McKanna's No. 1 Frances Farwell, Sec. 30, Blk. 22.. Fishing 1,080 ft.
J. E. McKanna's No. 1 J. M. Shelton estate, Sec. 29, Blk. 202 ..... Shut down 3,520 ft.; contract depth; will probably deepen, 2,200 ft. salt water from 3,510-20 ft.

HEMPHILL COUNTY

A. J. Calhoun's No. 1 J. C. Isaacs, Sec. 189, Blk. C..... Spudded and shut down.
Hoover et al's No. 1 Schaller estate, Sec. 4..... Spudded and shut down.
Hoover et al's No. 1 fee, J. S. Hood Sur..... Small show oil and gas 4,027 ft.; hole full water in sandy lime 4,005-10 ft.; shut down 4,380 ft.

HUTCHINSON COUNTY

Anderson & Pritchard's No. 1 Yake, Sec. 1, Blk. J..... Total depth 3,005 ft.; plugged back to 2,795 ft.; rig burned while trying to shoot.
Marland Oil Co.'s (Leo Flowers) No. 1 Carver, Wm. Heath Sur ..... Spraying 15 bbls. salt water from 3,270-97 ft.; shut down 3,381 ft.; to drill deeper.
Pole Cat Oil Co.'s No. 1 W. B. Haile, Sec. 24, Blk. M-21.. Rig.
Pearfield Oil Co.'s No. 1 Luginbyhl Brothers, Sec. 50, Blk. M-23 ..... Shut down 1,200 ft.
Phillips Pet. Co.'s No. 1 Yake, Sec. 36, Blk. 46..... Fishing 1,960 ft.
Skyrocket Oil Co.'s (was Pool & Golding's) No. 1 Mrs. R. A. Jameson, Antonio Dubois Sur..... 500,000 ft. gas 1,737-50 ft.; drilling 2,500 ft.
Prairie Oil & Gas Co.'s No. 1 J. M. Sanford, SW cor. N ½ Sec. 85, Blk. 46..... Rig.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 1 Cal Merchant ..... Drilling 450 ft.

LIPSCOMB COUNTY

McCorkle's No. 1 A. Barton..... Fishing 3,760 ft.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW Sec. 100, Blk. 43 ..... Pipe trouble 1,150 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Terry Thompson, Sec. 19, Blk. 44.. Drilling 3,250 ft.; 2,000,000 ft. of gas at 3,245 ft.
Douglas Oil Co.'s No. 1 H. M. Beauchamp, Sec. 112, Blk. 44 ..... Underreaming at 2,875 ft.
Marland Oil Co.'s No. 1 J. T. Sneed, Jr., Sec. 25, Blk. 1... Shut down 3,202 ft.; one-half baller water per hour at 3,153-3,202 ft.
Humble O. & R. Co.'s No. 1 Kilgore, Sec. 28, Blk. 44..... Drilling 3,755 ft.; total depth 3,867 ft.; 400 ft. of salt water from 3,355-60 ft.; to plug back and save gas.
Morton & Co.'s No. 1 Reeder, Sec. 191, Blk. 3-T..... Lime 2,805-55 ft.; trying to mud off 62,000,000 ft. gas.
Phillips Pet. Co.'s No. 2 Special Sneed..... Drilling 2,534 ft.; 10,000,000 ft. gas 2,265-2,475 ft.
Moore County Oil Co.'s No. 1 Sneed, Sec. 30, Blk. 6-T.... Drilling by tools 1,970 ft.
Shadler Brothers' No. 1 John Lowery, Sec. 237, Blk. 44... Shut down 1,365 ft.; 12½-in. casing froze.
Skelly Oil Co.'s No. 1 Armstrong & Byrd..... Building rig.
Prairie and Shamrock's No. 1 Gober, Sec. 16, Blk. M-21.. Total depth 1,120 ft.; to skid rig.

OCHILTREE COUNTY

W. G. Burton's No. 1 Stickler, Sec. 579, Blk. 43..... Shut down 3,830 ft. for 5-in.
Hamilton et al's No. 1 R. E. Wamble, Sec. 144, Blk. 43... Shut down 250 ft.
McCorkle Pipe Line Co.'s No. 1 R. H. Moore, Sec. 471, Blk. 43 ..... Shut down 1,600 ft.
McCorkle's No. 1 Weinett, Sec. 674, Blk. 43..... Rig.
Standard Dev. Co.'s No. 1 Bowden, Sec. 923, Blk. 43..... Shut down 900 ft.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landergin, SE cor. NE SW Sec. 46, League 310, Capital land..... Drilling 3,219 ft.

POTTER COUNTY

Greater Amarillo Pet. Co.'s No. 1 Townsite, Sec. 167, Blk. 2, A. B. & M. Sur..... Shut down 2,020 ft.; temporarily abandoned.
Farmer O. & G. Co.'s No. 1 J. A. Jones, Sec. 3, Blk. 1.... Shut down 200 ft.; temporarily abandoned.
Kelmey Oil Co.'s No. 1 W. H. Bush, Sec. 19, Blk. 9..... Rig; temporarily abandoned.

RANDALL COUNTY

Patterson et al's No. 1 Campbell & McIlroy, NE cor. Sec. 60, Blk. K-14, T. T. R. R. Sur..... Spudded and temporarily abandoned.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Shut down 4,910 ft. for material.
Dunbar's No. 1 H. A. Gill, Sec. 127, Blk. M-2..... Cellar; temporarily abandoned.
Gibson Oil Corp.'s No. 1 T. S. Jones..... Salt water 4,143-60 ft.; fishing 4,220 ft.
Murphy et al's No. 1 Gill, Sec. 31, Blk. M-2..... Shut down 650 ft.
Charles Page et al's No. 1 Hamilton, Tract 2, Clay County school land ..... Shut down 440 ft.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk 3-B..... Drilling 1,241 ft.
Hagy & Harrington's No. 1 S. F. Flores, C SW Sec. 64, Blk. 3-T, T. & N. O. Sur..... Digging cellar.
Phillips Pet. Co.'s No. 1 Price & Fuqua, C NE Sec. 33, Blk. 2-B, G. H. & H. Sur..... Location.
Whitehead et al's No. 1 Lee Bivins, C SW Sec. 36, Blk. 2, G. H. & H. Sur..... Location.

SWISHER COUNTY

R. H. Miller's No. 1 Todd..... Location temporarily abandoned.

WHEELER COUNTY

American Ref. Co.'s No. 1 E. E. Carlton, Sec. 29, Blk. 13 Shut down 2,029 ft.; 8,000,000 ft.; gas, show of oil 2,027 ft.
Angus et al's No. 1 G. A. Morgan, SW cor. SW NE Sec. 93, Blk. 17..... Shut down 950 ft. for rig repairs.
Boyles & Johnson's No. 1 S. L. Lewis, Sec. 40, Blk. 24... Fishing for bit 2,400 ft.
Continental Oil Co.'s No. 2 J. H. Jackson, SE cor. NE Sec. 11, Blk. 27..... Preparing to abandon 2,378 ft.
Foster et al's No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur..... Spudded and shut down.
Lone Star Gas Co.'s No. 1 C. A. Linkey, C NW SE Sec. 129, Blk. 23..... Drilling by underreaming lug at 1,430 ft.
Lone Star Gas Co.'s No. 1 R. S. Alexander, NE NW Sec. 11, Blk. 27..... Drilling 1,000 ft.
Magnolia Pet. Co.'s No. 1 J. A. Worley, NE cor. Sec. 39, Sec. 42, Blk. 24..... Set 8-in. 2,280 ft.
Marland Oil Co.'s No. 2 W. E. Bentley..... Fishing for tools 2,040 ft.
North Texas Oil Co.'s No. 1 J. H. Jackson, NE NW Sec. 11, Blk. 27..... Drilling 1,495 ft.
J. J. Rook's No. 1 M. Mertel, SE NE Sec. 4, Blk. 24, H. & G. N. Sur..... Drilling 380 ft.
J. J. Rook Co.'s No. 1 T. C. Jones, Sec. 1, Blk. 34..... Fishing casing 1,300 ft.
J. J. Rook's No. 1 C. W. Porter, SW cor. NW Sec. 41, Blk. 24 ..... Shut down 1,700 ft.
Wheeler O. & G. Co.'s No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... Spudded and shut down.
Smith, Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. 4-A ..... Shut down 2,000 ft. for orders.
E. L. Woodley, Jr., No. 1 Woodley, Sr., Sec. 13, Blk. 5-A.. Fishing baller 2,235 ft.
Watchorn O. & G. Co.'s No. 1 F. E. Shelton, C NE NE Sec. 22, Blk. 24..... Drilling 1,296 ft.

NORTH TEXAS MARKET FURTHER WEAKENED

FORT WORTH, Tex., Apr. 25.—A further weakening of the north Texas refined market during the past week further demoralized gasoline. An expected crude cut has left gasoline in uncertain position. Several refiners are trying to hold U. S. Motor grade gasoline to 6 and 6¼ cents but considerable of the gasoline moved in the territory last week went at 6 cents. There was little buying and movement was slow.

Continued rains and a few days of cold weather cut sharply into the spot trade. Only a few refiners are running crackers and they are being operated on reduced runs.

Jobbers were in the market the latter part of the week trying to buy gasoline at 5¾ for delivery over May. So far as could be learned none was being sold at that figure. Natural gasolines were in the same slump that characterized Navy gasoline. Movements were slower during the past week and inquiries lighter.

Fuels changed little after dropping lower last week, An Arkansas refiner has cut sharply into the tractor fuel trade of south Arkansas, which north Texas refiners found a good outlet for their product. That refiner is cutting a tractor fuel that eliminates the paying of the Arkansas state tax. It is a 57 gravity 460 to 470 endpoint, light straw color fuel finding a ready market in that territory. An Arkansas state inspector declared the product not subject to the State tax.

STOCKS AT REFINERIES

The following is the American Petroleum Institute's summary for the month of March of the increases and decreases in stocks at refineries covering approximately 86 per cent of the operating capacity east of California, barrels of 42 gallons:

	Increase	Decrease
Domestic crude oil.....	.....	45,000
Foreign crude oil	.....	268,000
Gasoline	1,843,000	.....
Kerosene	220,000	.....
Gas and fuel oils.....	734,000	.....
Lubricating oil	145,000	.....
Miscellaneous	126,000	.....
Total	3,058,000	313,000
Deduct	313,000	
Net increase	2,745,000	

NAMED TEXAS JUDGE

Governor Moody, of Texas, has announced the appointment of W. R. Boyd, of Teague, as judge of the Eighty-Seventh Judicial District Court, in which district are located the Mexia and Wortham oil fields. Judge Boyd is the father of W. R. Boyd, Jr., the assistant general secretary and counsel of the American Petroleum Institute.

"SHOWING" IN FLORIDA?

A telegram from Sebring, Fla., signed Sebring Daily American, tells of "definite oil indications near Sebring at 2,600 feet." The telegram fails to give the name of the company or firm which reported the oil showing.

INCREASE IN BOTH VOLUME AND UTILITY

(Continued from Page 33)

Wichita Falls. They averaged about 30,000 bbls., a day and there was no production in what we know now as Central Texas, West Texas and Panhandle. The territory which now produces around 425,000 bbls., a day was then producing 30,000 bbls., a day. The whole state of Texas which now produces about 599,000 bbls., a day or at the rate of 218,635,000 bbls., per year produced 32,413,287 bbls., an average of 88,803 bbls., per day in our first year in the World War, or a little more than one-seventh of our present-day production in that state. California did not figure largely in the war picture on account of its remoteness. It produced in 1917 an average of about 257,200 bbls. in 1917, while now it is producing 645,000 bbls. and has a lot of production shut in. The whole United States in 1917 produced 335,315,601 bbls. At the present rate of production we will produce that much oil in about four and a half months.

In the Critical Year

But 1917 was not the critical year. It was in 1918 that the power of the United States was shown in its fullness, and when the oil industry was given a great share of the credit for winning the war. And that year this country produced only 356,000,000 bbls. of crude oil, an average of less than 970,000 bbls., a day. Compare that 970,000 bbls. daily average with the present day 2,450,000-bbl., average. Oklahoma, Kansas and Arkansas are producing more oil than the whole United States produced nine years ago.

One day's production in Oklahoma, Texas and California is more than two days' production in the whole United States in the year the oil industry made it possible for the allied armies to crush the Central Powers.

We don't need oil for the same purpose we needed it then, but if the need arose we have over 150 per cent more of it in volume and 400 per cent more of it in utility, thanks to modern refining methods.

817,241,419 Bbls. in 12 Months

The month of March 1927 saw all past records of oil production broken in the United States. A total of 75,971,731 bbls. was produced bringing the production for the 12 months ending March 31 up to 817,241,419 bbls. also a record breaking production for a year's time.

The Seminole area in Seminole County, Oklahoma, average 312,392 bbls. Which exceeded the greatest average for the Cushing-Shamrock Field in Creek County, which in April 1915 averaged 287,000 bbls. a day.

Following is the March production record of the United States by major producing divisions, and the record by pool for the States of Kansas, Oklahoma, Texas, Arkansas and Louisiana.

PRODUCTION OF THE UNITED STATES

	Daily Av.	Monthly
Oklahoma	725,191	22,480,921
California	639,862	19,835,724
Texas	594,100	18,417,100
Arkansas	124,320	3,853,920
Kansas	118,479	3,672,849
Louisiana	61,175	1,896,425
Rocky Mountain	79,574	2,466,798
Eastern Fields	108,000	3,348,000
Total, March	2,450,701	75,971,731
Total, February	2,439,945	68,318,462
Difference	10,756	7,653,269

SUMMARY BY PRODUCING DIVISIONS
Crude Oil Production in Barrels in March, 1927.
Mid-Continent Fields

	Daily Av.	Month
Kansas	118,479	3,672,849
Oklahoma	725,191	22,480,921
North Texas	96,657	2,996,367
Central Texas	73,988	2,293,628
West Texas	75,210	2,331,510
Panhandle of Texas	117,890	3,654,590
East Central Texas	46,534	1,442,554
Arkansas	124,320	3,853,920
North Louisiana	51,281	1,589,711
Total, March	1,429,550	44,316,050
Total February	1,409,233	39,458,524
Difference	20,317	4,857,426

GULF COAST AND SOUTHWEST TEXAS

	Daily Av.	Month
Gulf Coast (Tex.-La.)	156,051	4,837,581
Southwest Texas	37,664	1,167,584
Total, March	193,715	6,005,165
Total, February	195,889	5,484,892
Difference	2,174	520,273

PRODUCTION BY STATES

	Daily Av.	Month
Kansas	118,479	3,672,849
Oklahoma	725,191	22,480,921
Texas	594,100	18,417,100
Arkansas	124,320	3,853,920
Louisiana	61,175	1,896,425
Total, March	1,623,265	50,321,215
Total, February	1,605,122	44,943,416
Difference	18,143	5,377,799

KANSAS
Daily Average and Total Monthly Production in March, 1927.

	Daily Av.	Month
Marion County—		
Florence	844	26,164
Peabody	1,473	45,663
Covert-Sellers	816	25,296
Total	3,133	97,123
Butler County—		
Elbing	2,345	72,695
Potwin	367	11,377
Cameron-Robinson	604	18,724
Wilson-Dunkle	1,594	49,414
Towanda	2,701	83,731
Fox-Bush	1,329	41,199
Nuttle-Koogler	2,064	63,984
Eldorado	7,776	241,056
Smock	236	7,286
Leon-Weaver	2,402	74,462
North Augusta	1,441	44,671
South Augusta	1,833	56,823
Sluss	347	10,757
Benton	125	3,875
Douglas	133	4,123
Keighly	3,096	95,976
Eastern Butler	1,141	35,371
Total	29,533	915,523
Greenwood-Woolson Counties—		
Sallyards	1,437	44,547
Teet ..Pixley-Scott	12,582	390,042
Virgil	4,316	133,796
Thrall-Burkett	2,909	90,179
Seely	12,389	384,059
Polhamus	1,497	46,407
Miscellaneous	3,501	108,531
Total	38,631	1,197,561
Cowley County—		
Rainbow Bend	2,360	73,160
Slick	1,287	39,897
Graham	688	21,328
Rock (Twp. 30-4)	351	10,881
Clark (Twp. 31-5)	241	7,471
Eastman (Twps. 30-6 and 31-6)	856	26,536
Winfield-New Salem (Twps. 32-4 and 32-5)	2,768	85,808
Miscellaneous	385	11,935
Total	8,936	277,016
Other Counties—		
Sumner	16,747	519,157
Rice	1,304	40,424
Russell	3,127	96,937
Harvey	55	1,705
Chautauqua	2,463	76,353
Elk	3,064	94,984
Montgomery	1,876	58,156
Wilson	258	7,998
Allen	742	23,002
Neosho	663	20,553
Lyon	2,438	75,578
Miami	1,136	35,216
Franklin	454	14,074
Douglas	69	2,139
Bourbon	19	589
Woodson	660	20,460
Linn	235	7,285
Anderson	2,650	82,150
Coffey	269	8,029
Labette	27	837
Total	38,246	1,185,626
Total, March	118,479	3,672,849
Total, February	119,622	3,349,416
Difference	1,143	323,433

OKLAHOMA
Daily Average and Total Monthly Production

	Daily Av.	Month
Washington County	4,785	148,335
Nowata County	6,139	190,309
Rogers County	1,742	54,002
Osage and Eastern Kay Counties—		
Burbank	47,613	1,476,003
Osage, outside Burbank	31,117	964,627
Total	78,730	2,440,630
Tulsa County—		
Bird Creek, Owasso, etc.	3,779	117,149
Red Fork, Sand Springs, Bruner, Turkey Mountain and Fisher	4,191	129,921
Bixby, Leonard and Jenks	2,342	72,602
Broken Arrow and Coweta	1,227	38,037
Total	11,539	357,709
Okmulgee, Muskogee and N. Okfuskee Counties—		
Mounds, Beggs, Hamilton Switch, Youngstown	8,590	266,290
Bald Hill and Haskell	3,974	123,194
Morris, Boynton and Cole	2,946	91,326
Okmulgee	2,511	77,841
Tiger Flats, Henryetta, Schulter and Bartlett	2,774	85,994
Total	20,795	644,645
Okfuskee, Seminole & Hughes Counties—		
Seminole:		
Seminole City	231,203	7,167,293
Earlsboro	29,664	919,584
Searight	31,152	965,712
Bowlegs	20,373	631,563
Total Seminole	312,392	9,684,152
Deaner Lyons	3,203	99,262
Wewoka	16,982	526,442
Cromwell	13,954	432,574
Papoose-Gilcrease	7,216	223,665
Weleetka	1,135	35,185
Holm-Jarvis	1,473	45,663
Yeager	457	14,167
Miscellaneous	1,870	57,970
Total	358,680	11,119,080
Creek County—		
Cushing-Shamrock	19,709	610,979
Glenn Pool, Sapulpa and Kiefer	8,380	259,780
Bristow, Kellyville and Depew	22,509	697,779
North Bristow and Pickett Prairie	4,457	138,167
Eastern Bristow or Slick	4,794	148,614
Total	59,849	1,855,319
Pawnee County—		
Cleveland	3,590	111,290
Keystone	4,047	125,457
Jennings	3,813	118,203
Otoe or Watchorn	2,481	76,911
Masham	40	1,240
Ralston	183	5,673
Total	14,154	438,774
Payne County—		
Yale, Quay and Ingalls	5,647	175,057
North Cushing or March Pool	2,145	66,495
Deep Rock (23-18-3)	3,667	113,677
Total	11,459	355,229
Lincoln County—		
Stroud	1,429	44,299
Davenport	3,942	122,202
Kendrick	784	24,304
Total	6,155	190,805
Kay, Grant and Noble Counties—		
Blackwell	1,535	47,585
Otstot	1,725	53,475
Vernon	690	21,390
Deer Creek	182	5,642
Ponca City	761	23,591
Mervine	261	8,091
North Braman	10,471	324,601
South Braman	8,447	261,857
Hubbard	5,759	178,529
Thomas	1,660	51,460
Tonkawa	25,958	804,698
Billings	314	9,734
Miscellaneous	433	13,423
Total	58,196	1,804,076
Garfield County—		
Garber	18,835	583,885
Carter County—		
Healdton	15,062	466,922
Hewitt	10,027	310,837
Graham	5,935	183,985
Fox	3,790	117,490
Brock	1,294	40,114
Tussy or Scholem Alechem	14,503	449,593
Total	50,611	1,568,941
Stephens-Cotton Counties—		
Loco-Milroy	2,270	70,370
Comanche	842	26,102
Duncan	5,363	166,253
Walters	851	26,381
Kilgore	152	4,712
Total	9,478	293,818
Jefferson County—		
Hambro	2,100	65,100
Caddo County—		
Cement	1,871	58,001
Garvin County—		
Robberson	2,852	88,412
Knox	6,208	192,448
Total	9,060	280,860
Beckham County—		
Sayre	54	1,674
Pontotoc County—		
Allen, Lloyd and Francis	519	16,089
Pottawatomie County—		
Maud	314	9,734
Marshall County—		
Madill	126	3,906
Total March	725,191	22,480,921
Total February	705,441	19,752,348
Difference	19,750	2,728,573

NORTH AND CENTRAL TEXAS

Daily Average and Total Monthly Production

	Daily Av.	Month
North Central Texas—		
Bankhead	13,210	409,510
Electra	14,970	464,070
North Central Texas—		
Iowa Park K.M.A.	4,123	127,813
Archer County	29,689	920,389
Clay County	699	21,669
Wilbarger	13,123	406,813
Montague County	14,205	440,355
Young County	5,097	158,007
Baylor County	78	2,038
Cooke County	1,443	44,733
Total	96,657	2,996,367
Central Texas—		
Clear Fork	4,776	148,056
Breckenridge	6,147	190,557
Caddo	2,861	88,691
Ranger-Eastland	6,879	213,249
Rising Star	46	1,426
Sipe Springs	146	4,526
Desdemona	1,491	46,221
Pioneer	425	13,175
Brown County	24,891	771,621
Callahan County	4,767	147,777
Coleman County	1,354	41,974
Throckmorton County	1,546	47,926
Jack County	477	14,787
Palo Pinto County	521	16,151
Shackelford County	13,517	419,027
Throckmorton County	1,546	47,926
Jones County	2,598	80,538
Total	73,988	2,293,628
West Texas—		
Reagan County	25,470	789,570
Mitchell County	3,745	116,095
Winkler County	335	10,385
Howard County	2,677	82,987
Scurry County	26	806
Upton-Crane Counties	40,778	1,264,118
Crockett County	1,067	33,077
Loving County	17	527
Pecos County	1,074	33,294
Ecton County	21	651
Total	75,210	2,331,510
Panhandle—		
Carson County	6,296	195,176
Hutchinson County	101,739	3,153,909
Moore County	10	310
Wheeler	2,045	63,395
Gray	7,749	240,219
Potter	51	1,581
Total	117,890	3,654,590
East Central Texas—		
Powell	19,957	618,667
Mexia	17,141	531,371
Nigger Creek	3,943	122,233
Currie	791	24,521
Richland	1,023	31,713
Wortham	3,679	114,049
Total	46,534	1,442,554
Total all fields, March	410,279	12,718,649
Total all fields, Feb.	403,875	11,308,500
Difference	6,404	1,410,149

NORTH LOUISIANA

Daily Average and Monthly Production in March, 1927

	Daily Av.	Month
Bellevue	1,471	45,601
Caddo light	10,104	313,224
Caddo heavy	4,477	138,787
Cotton Valley	6,103	189,192
DeSoto and Red River	4,140	128,340
Elm Grove	692	21,452
Haynesville	7,988	247,628
Homer	5,305	164,455
Urania	11,001	341,031
Total March	51,281	1,589,711
Total February	52,643	1,474,004
Difference	1,362	115,707

ARKANSAS

Daily Average and Monthly Production in March, 1927

	Daily Av.	Month
Smackover heavy	98,745	3,061,095
Smackover light	11,608	359,848
El Dorado	5,928	183,768
Lisbon	4,714	146,134
Nevada	1,770	54,870
Bradley	211	6,541
Stephens	1,344	41,664
Total March	124,320	3,853,920
Total February	127,652	3,574,256
Difference	3,332	279,664

GULF COAST

Average Daily and Total Production for the Month of March, 1927

Pool —	Daily Av.	Month
Boling	1,521	47,151
Batson	1,524	47,244
Blue Ridge	2,845	91,195
Big Creek	4,466	138,446
Barber Hill	975	29,335
Dayton	56	1,736
Damon Mound	962	29,822
Edgerly (La.)	930	28,830
Goose Creek	7,451	240,961
Humble	3,985	123,535
Hull	16,682	517,142
High Island	602	18,662
Jennings (La.)	1,049	32,529
Markham	567	17,577
Lockport	4,437	137,547
Nash Dome	861	27,691
Orange	5,154	159,774
Orchard	42	1,302
Pierce Junction	11,056	341,736
Piedras Pintas	170	5,270
Spindletop	60,076	1,862,325
Saratoga	1,205	37,355
Sour Lake	5,402	167,462
South Liberty-South Dayton	4,034	125,054
Stark (La.)	2,625	80,375
Vinton (La.)	5,230	162,130
West Columbia	10,339	310,509
Welsh-Anse La Bute (La.)	60	1,866
*Miscellaneous	1,746	53,126
Total for March	156,051	4,837,581
Total for Feb.	157,485	4,400,580
Difference	1,434	437,001

*Includes Nacogdoches, Washington and Kleberg Counties in Texas, and Cameron, Calcasieu and Iberia Parishes in Louisiana.

SOUTHWEST TEXAS

Average Daily and Total Production for the Month of March, 1927

Field—	Daily Av.	Month
Luling	18,285	566,835
Mirando	14,462	447,422
Somerset	1,494	46,314
Calliham	40	1,240
Rockdale-Minerva	974	31,194
Lockhart (Lytton Spgs.)	2,244	69,564
Miscellaneous	165	5,115
Total for March	37,664	1,167,584
Total for Feb.	38,404	1,075,312
Difference	740	92,272

MAG. WOULD OPERATE CARBON BLACK PLANT

AMARILLO, Tex., Apr. 23 — The Magnolia Petroleum Co. has applied to the Railroad Commission of Texas for the privilege and right to construct and operate a carbon black plant on its Worley lease in the Shamrock Field, about 17 miles northwest of that town in Wheeler County.

A hearing will be held Thursday, April 14, at Austin, in the case.

The Magnolia has also purchased the surface rights on a 10-acre tract in the southeast of Section 64, Block 3, of I. & G. N. Survey, to the northeast of the Pampa Field in Gray County. It proposes to build a two-unit plant, each unit having 36 burners. The gas to be burned tested an open flow of 15,300,000 feet, so the Magnolia applied and got permission for the right to burn 15,000,000 feet a day.

CO-OPERATIVE WILD-CATTING IN TEXAS

(Continued from Page 32)

cumulation of oil is expected to lie on the northwest slope of favorable structures."

One Dry Hole in County

To date only one well has been completed in King County, that having been the dry hole completed by the California Co. in 1925.

The two upper sands in the California well carry an abundance of salt water. Several flows of salt water were recorded in the sandy lime formation from 2,400 to 2,500 feet and in broken limes from 2,125 to 3,400 feet. Several of the logs in adjoining counties to the northeast and southeast recorded showings of oil and gas from 1,800 to 2,500 feet, and it is estimated that many of these same horizons may be found in King County at depths ranging from 2,800 to 3,500 feet. About 25 miles to the northeast of the wells now being drilled in King County, the Humble Oil & Refining Co. and Navarro Oil Co. encountered 8,000,000 feet of gas at 3,765 to 3,810 feet and it is estimated that this horizon should be reached at approximately 3,800 to 3,900 feet in the central part of King County. The California Co. well, which was completed at 3,500 feet, did not reach this sand which is considered by geologists who have worked in the area as the most prospective horizon.

The top of the Cisco Group of the Pennsylvania system is rather indefinite, according to Hudnall & Pritle, but should be reached at a depth of 2,600-2,700 feet on the basis of a correlation made in the Swenson Oil Corp.'s well in Stonewall County. Geologists who analyzed fossils from the Swenson duster placed the top of the Cisco at 2,740 feet and this correlation has been rather generally accepted.

3,500-Foot Holes Contracted

In order to test these structures thoroughly, contracts were let for 3,500-foot holes. The cost of a turnkey job is about $30,000 to $35,000. The contractor on the Phillips Petroleum Co.'s test has been making good time and already has the hole down below 2,200 feet. Surface water is plentiful in this area but it carries gypsum in solution.

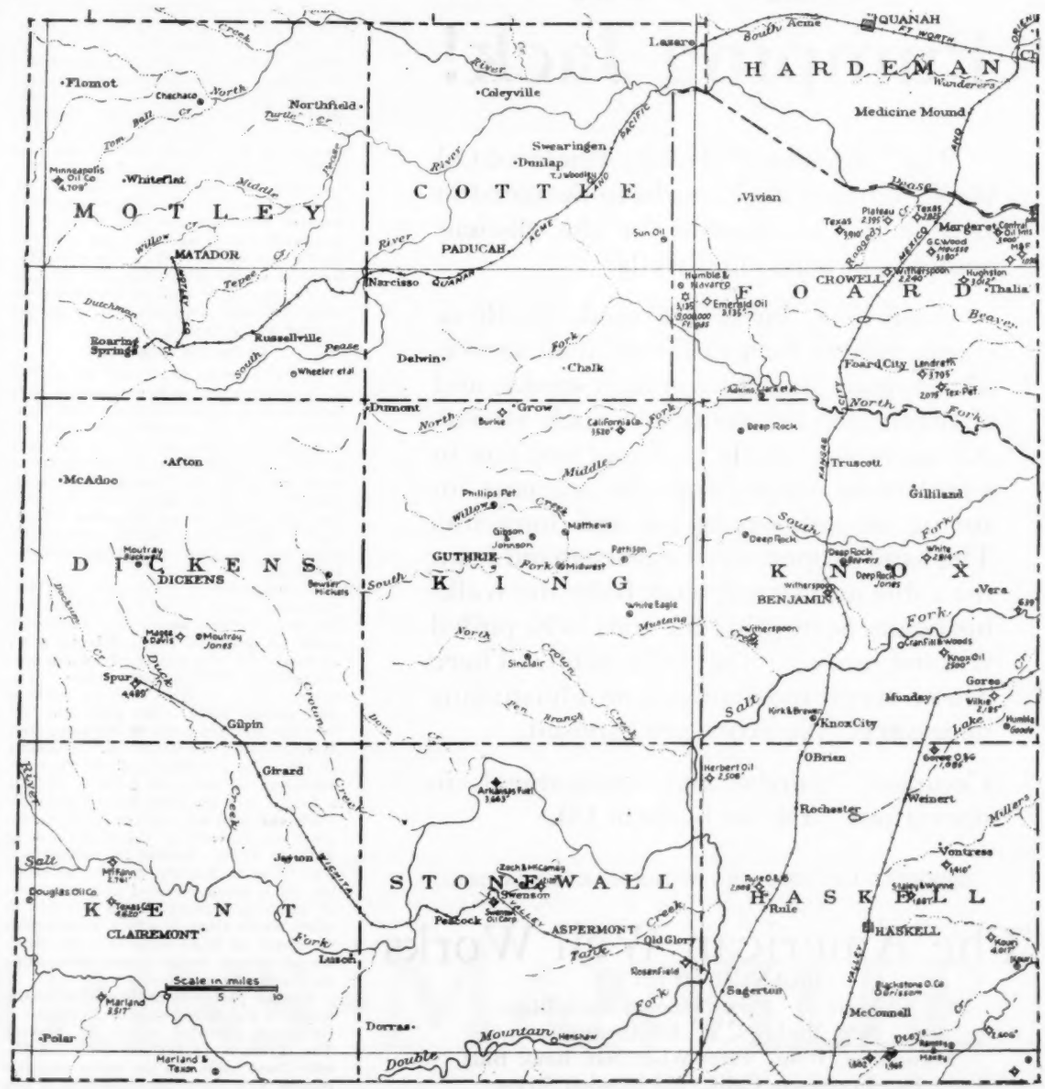
In Knox County, which is directly east of King, another unusual wildcat play is being carried on. This one, however, is practically a single-handed campaign by one concern, the Deep Rock Oil Co. of Fort Worth, which is backed by the Shaffer Oil & Refining Co. of Tulsa. Surface geology is very difficult to work in Knox County and this play was made on subsurface information obtained from logs of dry holes. The Deep Rock Oil Co. has already started 3 wells and has another location for the fourth. The Humble Oil & Refining Co. has also started one in the southeastern corner of the county, about 3 miles south of Goree.

The latest depths and status of all wells shown on the accompanying maps can be found in the weekly West Texas wildcat reports.

Following is a log of the California Co.'s No. 1 Masterson the only well ever completed in King County:

Section 168, Block "A"—Survey R. M. Thompson, 330 feet north and 330 feet east SW cor. of the NW, King County, Texas.
Lease: R. B. Masterson—Well No. 1.
Elevation 1,750 feet.
Owner: The California Co., San Francisco, Calif.
Commenced drilling: 9-18-25.
Completed: 2-27-26.
Type of Rig: Standard.
Casing Record: 20 inches, 32 feet; 15½ inches, 595 feet; 12¼ inches, 1,410 feet; 10 inches, 1,610 feet; 8¼ inches, 3,170 feet; 6⅝ inches, 3,430 feet.

From	Thickness							
0	12	Red mud	195	200	Gray lime hard	1,210	1,215	Gray lime
12	33	Yellow clay	200	210	Gray lime hard	1,215	1,230	Gray slate
33	35	Gray lime soft	210	225	Hard gray lime	1,230	1,245	Gray and brown shale
35	44	Gray lime soft	225	232	Red shale	1,245	1,255	Brown and blue shale
44	46	Gray lime soft	232	250	Gray lime hard	1,255	1,260	Gray lime soft
46	66	Red rock	250	253	Blue shale	1,260	1,280	Gray shale
66	85	Gray lime hard	253	265	Gray lime hard	1,280	1,305	Red shale
85	90	Gray lime soft	265	270	Red shale	1,305	1,320	Red shale
90	125	Brown shale	270	280	Blue shale	1,320	1,350	Red shale, 1,320' to 1,330'
125	135	Gray lime hard	280	290	Red shale	1,350	1,360	Gray lime
135	142	Hard gray lime	290	300	Red shale	1,360	1,371	Red rock
142	145	Blue shale	300	310	Gray shale	1,371	1,380	Red rock
145	156	Red rock	310	315	Brown shale	1,380	1,395	Pink shale
156	162	Blue shale	315	322	Brown shale	1,395	1,400	Gray shale
162	173	Hard gray lime	322	324	Gray lime hard	1,400	1,410	Red rock
173	175	Blue shale	324	334	Red shale	1,410	1,475	Hard gray lime
175	180	Red rock	334	336	Gray lime hard	1,475	1,480	Blue shale
180	190	Blue shale	336	355	Gray lime hard	1,480	1,495	Gray lime hard
190	195	Gray lime soft	355	363	Gray lime hard	1,495	1,515	Red shale
			363	368	Red shale	1,515	1,530	Brown shale
			368	376	Gray lime hard	1,530	1,535	Brown shale
			376	381	Red shale	1,535	1,540	Gray lime soft
			381	388	Gray lime hard	1,540	1,550	Gray shale
			388	395	Red shale	1,550	1,555	Gray lime soft
			395	400	Gray lime hard	1,555	1,570	Gray shale
			400	410	Red shale	1,570	1,590	Gray shale
			410	415	Gray lime	1,590	1,595	Gray slate
			415	460	Red rock	1,595	1,610	Gray lime hard
			460	476	Gray lime	1,610	1,620	Blue shale
			476	481	Red rock	1,620	1,700	Hard gray lime
			481	485	Blue shale	1,700	1,710	Broken lime and shale
			485	491	Red rock	1,710	1,940	Hard gray lime
			491	498	Gray lime	1,940	1,945	Blue shale
			498	594	Red rock	1,945	1,950	Soft gray lime
			594	605	Gray lime	2,015	2,075	Hard gray lime and gypsum
			605	690	Brown shale	2,075	2,220	Hard gray lime
			690	695	Blue shale	2,220	2,290	Soft gray lime
			695	735	Red shale	2,290	2,390	Soft gray sand lime
			735	740	Gray lime	2,390	2,410	Soft gray sandy lime 24 bbls.
			740	745	Red shale	2,410	2,430	Soft gray sandy lime
			745	750	Gray lime	2,430	2,440	Soft gray sandy lime 96 bbls. S. W. per 25 hours
			750	770	Gray shale	2,440	2,480	Soft gray sandy lime
			770	780	Gray lime	2,480	2,500	Soft gray sandy lime
			780	790	Blue shale	2,500	2,508	Soft gray sandy lime
			790	810	Red shale	2,508	2,517	Broken lime and gravel
			810	830	Gray lime	2,517	2,546	Soft gray sandy lime
			830	840	Gray shale	2,546	2,565	Hard gray sandy lime
			840	870	Red shale (cavey)	2,565	2,582	Hard gray lime
			870	875	Gray lime	2,582	2,600	Hard gray lime
			875	890	Red shale	2,600	2,620	Soft gray sandy lime
			890	956	Red shale	2,620	2,645	Gray water sand HSFW
			956	1,005	Blue shale	2,645	2,657	Light gray hard lime
			1,005	1,035	Gray shale	2,657	2,665	Light gray hard lime
			1,035	1,095	Blue shale	2,665	2,673	Gray water sand? HFSW
			1,095	1,105	Red shale	2,673	2,690	Dark gray hard lime
			1,105	1,120	Gray lime	2,690	2,710	Broken lime and shale
			1,120	1,132	Soft gray lime and gypsum	2,710	2,755	Light gray soft lime
			1,132	1,160	Blue shale and limestone	2,755	2,775	Broken lime and red shale
			1,160	1,190	White slate	2,775	2,785	Dark gray soft lime
			1,190	1,210	Gray slate	2,785	2,830	Blue slate
						2,830	2,835	Broken lime and slate
						2,835	2,845	Red rock
						2,845	2,855	Soft gray lime
						2,855	2,865	Blue shale
						2,865	2,875	Red shale
						2,875	2,905	Gray slate
						2,905	2,915	Red shale
						2,915	2,930	Red shale
						2,930	2,940	Soft gray lime
						2,940	2,970	Lime shells and red shale
						2,970	2,980	Red shale and blue
						2,980	2,985	Soft gray lime
						2,985	3,005	Broken lime and gypsum
						3,005	3,015	Blue shale
						3,015	3,055	Gray shale
						3,055	3,070	Blue shale
						3,070	3,075	Soft gray lime
						3,075	3,085	Hard gray lime
						3,085	3,090	Blue shale
						3,090	3,100	Soft gray lime
						3,100	3,115	Blue shale
						3,115	3,120	Soft gray lime
						3,120	3,125	Soft gray lime 3,125', 3,130' gr wtr, sand HF
						3,125	3,135	Soft gray lime
						3,135	3,140	Blue shale
						3,140	3,155	Lime Shells and blue shale
						3,155	3,160	Red and blue shale
						3,160	3170	Blue shale
						3,170	3,200	Hard gray lime
						3,200	3,205	Blue shale
						3,205	3,215	Broken lime and black shale
						3,215	3,235	Soft gray limestone
						3,235	3,245	Hard gray lime
						3,245	3,250	Broken lime and blue shale
						3,250	3,260	Soft gray lime
						3,260	3,270	Lime shells and blue shale
						3,270	3,290	Hard gray lime
						3,290	3,300	Blue shale and lime shells
						3,300	3,320	Hard gray lime
						3,320	3,340	Black slate
						3,340	3,370	Black shale and lime shells
						3,370	3,395	Hard gray lime
						3,395	3,400	Soft gray lime 92 bbls. pr.hr.
						3,400	3,409	Hard gray lime
						3,409	3,420	Soft gray lime
						3,420	3,435	Hard gray lime
						3,435	3,440	Hard brown sand
						3,440	3,455	Black slate
						3,455	3,460	Hard gray lime
						3,460	3,475	Black slate
						3,475	3,485	Black slate and lime shells
						3,485	3,505	Blue shale
						3,505	3,510	Hard gray lime
						3,510	3,520	Blue shale
						3,520 TD		



General location of the five co-operative tests being dri lled in King County, western Texas, showing their relation to other tests that have been drilled to various depths in that part of the state.

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MARKET CONDITION AND TANKER RATE HOLD OFF CALIFORNIA COMPETITION

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

It is apparent from a comparison of California and Mid Continent crude oil prices, that the recent reduction of California oil has put the West Coast product back in competition with Mid-Continent crude in the Eastern market.

Whether this will result in any increase in the movement of California oil to the Atlantic Seaboard is problematical and is dependent largely on the factor of increased demand for products. At the present time, however, the action in cutting California crude can be taken as re-establishing California as a threat in the general markets. Previously, high tanker rates and the fact that California prices had not dropped with Mid-Continent declines were serving to isolate the West Coast and to put it back to some extent into the segregated position it occupied before the opening of the Los Angeles Basin fields.

The California crude oil movement to the Atlantic Coast plants is chiefly of refinable oil of about 24 to 26 gravity. Taking the average as 25 gravity, this grade has been slashed 50 cents a barrel in the new price schedule, and is now quoted at 90 a barrel. The current tanker rate on ships from Los Angeles to New York is from $1.10 to $1.15, making it possible to deliver California crude at around $2 a barrel.

The present tanker rate from the West Coast represents a drop in the past three or four weeks from ths high rate of around $1.35, and while this represents an easing up of the shortage situation as regards tankers, it is deceptive in the sense that this easing up has been due to a slackening in demand for boats to be used in the West Coast service. Because of the overproduction of oil in the Mid-Continent and due to the actual tanker shortage, many of the larger companies diverted what tonnage they could from the Pacific Coast trade and put it in the Gulf Coast service. With the price differential against California, the demand for bottoms to be used in the California trade slackened and there was a natural decline in the charter rate.

Distinction Important

This distinction is pointed out as one of importance, for in some quarters it is believed that, should the fact that California crude and products are again on a competitive basis so far as the spot market is concerned with Mid-Continent products result in a renewed buying on the West Coast for East Coast delivery, the effect might be an immediate stiffening of charter rates which could easily wipe out the price advantages held by California.

A comparison of California and Mid-Continent crude prices and of pipe line and tanker rates, shows that California crude oil, delivered North Atlantic ports at around $2, now enjoys advantage over competitive Mid-Continent crude. The average price of Mid-Continent crude is now around $1.30. The pipe line rate over the northern route to Bayonne, New Jersey, is 76¾ cents a barrel, and adding 20 cents for gathering and 10 cents for handling, the delivered price is $2.36¾ a barrel. On the other hand Panhandle crude and some other north Texas grades are being delivered at the Gulf Coast at $1.30 to $1.60. Adding the tanker rate Gulf Coast to Atlantic ports of 45 cents, this oil is being delivered at a total cost of under and around $2 a barrel. In other words there is still a considerable movement of Mid-Continent crude possible at figures under those representing the California movement.

Another factor in favor of the continuance of the Mid-Continent movement is the more plentiful supply of tankers. The diversion of tankers from the Pacific Coast trade and the easier situation coming with the steady launching of new tankers which are being put in the Gulf Coast service, are contributing to the advantage of the Mid-Continent movement. In the past few weeks the charter rate on tankers in the Gulf-Coast-Atlantic Coast service has dropped from around 60 and 65 cents a barrel to around 45 cents at the present time.

Cracking Stock

One of the factors in the California oil movement is the specialized demand for some of the crude for gasoline. This is also reflected in the movement of California fuel oil and gas oil used for cracking charging stock. The movement of crude oil from California to the Atlantic p rts has been on the decline, rather than on the increase. In 1926 a total of 12,687,000 bbls. was moved, against 14,032,000 bbls. the preceding year. In 1924 a total of 39,300,000 bbls. of crude oil was shipped through the Panama Canal east.

On the other hand, last year fuel oil and gas oil were shipped in greatly increased quantities. This was in large part due to the increased use of California oil as a cracking stock by the eastern refineries. The present tanker rate on fuel oil and gas oil corresponds with the crude oil rate. With the recent declines in these products in the Group 3 territory, the differential as against California products is in favor of the former so far as the eastern market is concerned.

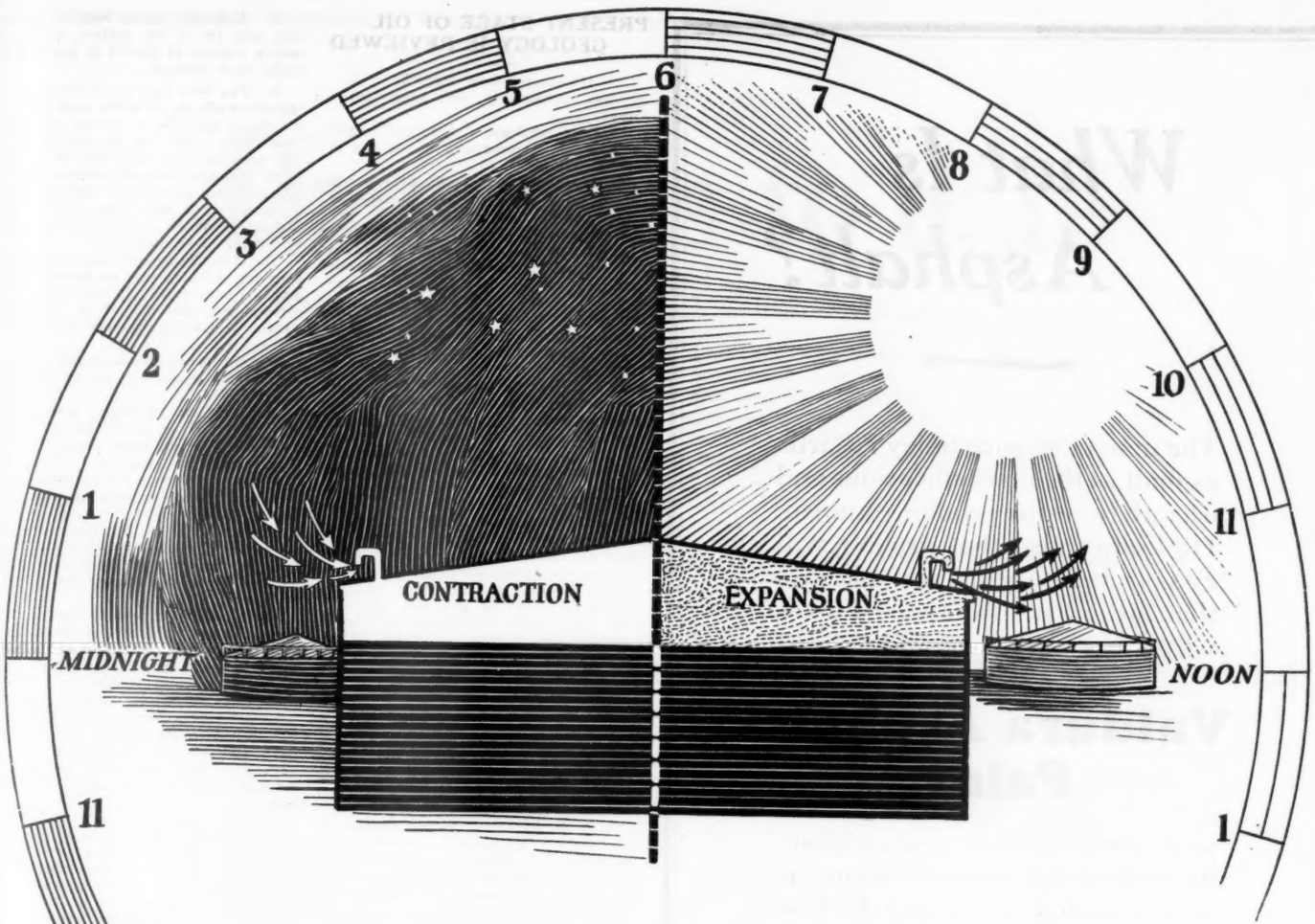
The probability that there will be no immediate increase in the movement of these products from the West Coast is further strengthened by the fact that some of the large refineries are cutting down their cracking operations, and that a large quantity of charging stock now coming into these plants on contracts is being stored. The chances are that while the gasoline situation continues weak, the companies will not increase their commitments for gas oil materially. Bunker fuel oil in New York is selling at $1.75 and is strong, and compares with a market of around 90 cents on the Pacific Coast. With a tanker rate of $1.10 a barrel, the California product is still out of the picture so far as the spot market is concerned.

The bulk of the movement of Pacific Coast products east represents contract purchases. This fact, coupled with the fact that several large companies, notably the Standard Oil Co. of New York and the Tide Water Associated Oil Co. have operating subsidiaries and connections on the Pacific Coast and have integrated the West coast and East Coast so far as their own operations are concerned, assures the continuance of a considerable volume in the movement for some time to come. Furthermore, a large part of the movement is by tankers owned and operated by the oil companies, and theoretically at least, they are not influenced by the tanker rates except in the case of making charters or of chartering.

There is, however, a considerable amount of buying in the spot market, and it is understood that the recent California price reductions have revived interest in the East in California products. Whether this will develop into a buying demand remains to be seen. Just at present the consensus of opinion in the East is that there will not be any material increase in the movement. This is based largly on two points: First, that general market conditions are not favorable, and, second, that the tanker scarcity will still operate to restrict the movement.

AGREEMENT TO MARKET

The Union Oil Co. of California has agreed to market all of the crude produced by the members of the Independent Oil Producers' Agency during 1927 and guarantees prices, at least the minimum field prices set by the Standard Oil Co. of California. The agency members produced 16,323,000 bbls. of crude last year and the disbursements to the members amounted to $14,000,000.



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NSCO

PRESENT STAGE OF OIL GEOLOGY IS REVIEWED

(Continued from Page 92)

oil has presumably not been driven away?

8. Does geologic "structure" exist suitable for concentrating oil or gas in commercial quantity?

9. Are the hydrostatic conditions such as do not prohibit the accumulation of oil in pools?

Importance of Practical Unanimity

In this discussion a desirable axiom may be that an oil field cannot be safely predicted on the basis of one or two geologic factors alone, but the many criteria must be given their proper weight. Even after consideration of all known factors a field is not to be predicted simply because a majority or nearly all of the questions propounded as working hypotheses have been answered affirmatively. (At least, a negative answer must not prevail on a locality if oil is to be safely predicted.) While the writer will not go so far as to assert that drilling ought never to be undertaken in the absence of final affirmative answers to all the fundamental criteria, it seems safe to assert that test wells can be safely drilled if every question be answered favorably. If some criteria be answered favorably and the answer to others be unknown, the venture may still constitute a "good gamble"; nevertheless, as a rule, if all but two criteria have been answered in the affirmative and these two be answered negatively, the prospects can be considered unfavorable. In fact, the writer has in mind only one fundamental criterion (namely, presence or absence of oil seepages or "surface indications") that can be answered in the negative and a reasonable prospect still remain of finding oil in a commercial quantity

With the exception of the factors of (a) "surface indications" (seepages) and (b) source of origin, all criteria should probably be answered affirmatively if the district is to be considered favorable. In other words, if the strata be of an age in which oil or gas is elsewhere unknown, or if their character be such that no known source of origin can exist, or if no porous reservoirs exist having overlying impervious cover, or if the local geologic "structure" be nowhere suitable for concentrating oil or gas in commercial quantity—if any of these defects exist—a field is not likely to be found.

Thus it is important that all of the fundamental criteria except that of "surface indications" (and possibly the course of origin) be answered affirmatively, or at least that the criteria be not answered in the negative. If one answer be negative, the field is not, as a rule, recommended for development.

Secondary Geologic Criteria

Assuming, however, that a possible source of origin be known, that seepages exist, that the ages of certain strata are identical with those in certain known fields, that porous sandstones or limestones underlie the region, that they are overlain by suitable impervious cover, that suitable conditions of nonmetamorphism have been proved or inferred and that satisfactory local geologic structure exists—still the geologist may be obliged to report adversely on the region, on account of any one of several geologic factors which may conveniently be termed "secondary criteria." That is, a reconnaissance or detailed study may have resulted in the discovery of some one or more than one of the following circumstances, in addition to the socalled fundamental criteria:

1. Faults may exist. These may or may not be favorable to oil or gas occurrence, according to their age, magnitude, position, cause, type, etc.

2. The region may be subject to frequent or violent earthquakes. In some countries these have been considered unfavorable, and it remains to be shown how far this pessimism is justified.

3. Favorable porous beds, although present, may lie at such great depth that we must inquire whether or not they can be reached by economic drilling.

4. Although porous beds be present, they may lie on the surface, so that a certain amount of the oil or gas may already have escaped.

5. The beds may stand vertically or approximately so, in which case the local structures may be so strong, so superficial or so "open" as to raise the question whether they can hold oil or gas.

6. "Sands," though present, may be of insufficient porosity to hold oil or gas in quantity or they may be too fine-grained or dense to yield fluids readily by flowing or pumping.

7. If oil be present, gas may accompany it; in which case no natural means may exist to force oil into wells from surrounding portions of a productive stratum, rendering recovery expensive or impossible.

8. Oil or gas may be present but unsuitable for commercial use in the available markets.

9. A source of origin, though present, may not be so related to porous beds that oil can have concentrated in them (as, for instance, where the "mother rock" lies in a superficial formation but the porous beds are thousands of feet beneath it).

10. Volcanic or plutonic rocks may abound in the vicinity and the geologist must inquire whether they have favorably or adversely affected the presence of oil.

11. Geologic structures, though existing, may not embrace any of the well-known types in which oil is likely to occur in quantity. The structures must then be carefully studied to ascertain their value or bearing on oil occurrence.

12. Where artesian water exists under high pressure it may in some cases have affected the concentration of oil adversely, but the mere presence of artesian water is not always unfavorable.

13. Oil may have been removed in times past by human or natural agencies.

14. The age of folding of the rock may be so much later than that of the stream itself as to have permitted undue hardening or desiccation of the oil or its alteration to torbinite, albertite, etc., before the favorable structures for its accumulation were formed.

15. The position of the water level may be favorable or unfavorable with respect to the local structure. This position may be determinable or it may be indeterminable from the surface investigation.

This list of possibilities that may need consideration is not an exhaustive one. The criteria are enumerated as one step in a complete diagnosis of an oil problem; and we all know that, even with the most complete studies, decided possibility remains of the existence of some unknown indecipherable but unfavorable condition which may prevent the occurrence or commercial extraction of oil.

Surface Indications

Classification of "surface indication": In listing the criteria we naturally recognize the fact that "surface indications" are not essential, since many producing fields evince no "surface indications." This is presumed to be because the strata therein are so thick, so unbroken or so impervious that no escape of oil or gas or their derivitives has taken place. The principal so-called "surface indications" may be classified as follows:

1. Oil seepages or "oil springs."
2. Natural gas seepages.
3. Outcrops of sandstones or limestones impregnated with petroleum or bitumen.
4. Bituminous dikes.
5. Mud volcanoes.
6. Burnt clays.
7. Occurrence of salt.
8. Occurrence of sulphur.

Any one of these may have some association with oil, but oil may occur at a great distance from the point where the evidences appear on the surface or the deposit may be unimportant commercially. Since a formation which reaches the surface at a particular point, and from which seepages are seen to emerge, may descend at such an angle that the structurally favorable locality lies many miles from the exposed outcrop, it is cer-

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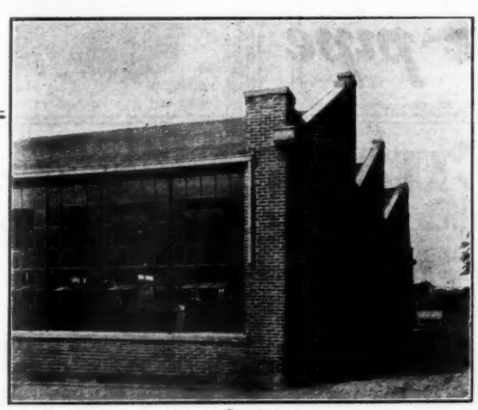

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tainly wrong policy to drill on or near seepages unless evidence exists that the main or oil gas deposit occurs directly below the particular point. The relative value of the various "surface indications" will be now considered.

Oil Seepages or "Oil Springs"

In 1915 a classification of seepages or oil springs was proposed by DeGolyer[1], as follows:

1. Seepages associated with igneous intrusions.
   (a) At contact zones of volcanic plugs and sedimentary rocks
   (b) At contact zones of dikes and sedimentary rocks.
   (c) Through cracks and fissures in the igneous rock itself.
   (d) As intrusions in the igneous rocks.
   (e) From metamorphosed rock above an intrusion which does not outcrop.
2. Seepages not associated with intrusions.
   (a) At crest of domes or anticlines.
   (b) Along marked fault or fissure planes.
   (c) From steeply dipping strata.
   (d) Isolated occurrences or uncertain relations.

Seepages commonly emerge in either one or two ways: First, where the outcrop of an oil-bearing bed or rock reaches the surface, or, secondly, where a crevice or fault exists through which oil has risen to the surface from some depth. The oil may occur as a small film on the surface of rivers or lakes, as was true in some of the Pennsylvania, Ohio and West Virginia oil fields in the early days of their discovery. In other cases, as in Mexico, Trinidad, Venezuela and California, the oil or its residue emerges from the earth in large volume.

The question is repeatedly asked why oil seepages so seldom exist in some productive oil fields, and the answer is generally easily given as follows: That the beds are so slightly tilted as to have remained unbroken, are so little fissured that oil could not reach the surface, etc. Where productive strata actually reach the surface in a distant locality, the oil has frequently disappeared at that point owing to metamorphism, erosion, evaporation or other factors, as is commonly the case in strata of Carboniferous and earlier ages.

Natural Gas Springs

In some fields bubbles of gas rise in minute quantities through stream or lake water to the surface. In other parts of the world gas has actually been burning for thousands of years. Gas springs, while not constituting actual proof of the existence of oil in a locality, show that conditions are potentially favorable, for, where natural gas is found we may expect petroleum also within the lateral range of the same formations.

Outcrops of Sands, Sandstones or Limestones Impregnated With Tar or Bitumen

Outcrops of formations impregnated with tar or bitumen are not common, but they exist in some parts of the world. Perhaps the best known outcrops of this kind are the "Tar sands" of the Athabasca and other rivers in northern Alberta, where the strata are impregnated with tar for scores of miles along those rivers. The outcrop of an oil "sand" is seldom visibly petroliferous, on account of the oxidation and evaporation that is continually taking place. In the case of asphalt-base oils, however, the outcrop is frequently distinctly bituminous or may have a brownish residue Compact limestones in places contain little globules of oil, and if oil be present in the vicinity of the outcrop, its presence can be detected by the odor after the rock is broken with a hammer. Testing for oil by the chloroform and laboratory methods is efficacious.

Bituminous Dikes

As to dikes of asphalt and other bitumen, the relationship is not so apparent, since these substances are frequently quite solid. The Albertite Mines of New Brunswick, grahamite dikes at Ritchie Mines, West Virginia, and bituminous dikes of Oklahoma are noteworthy examples. The oil may be present in such dikes in the form of "kerogen"; yet its presence shows the fundamental conditions to be petroliferous.

Mud Volcanoes

The question of whether mud volcanoes constitute an evidence of the existence of oil has been frequently debated, and perhaps it is not yet adequately answered, as the phenomena occur in parts of the world where oil is still unknown. Mud volcanoes are, however, evidence of the existence of gas, and this, if "wet," may lead to inference of the association of oil also.

Burnt Clays

In a few parts of the world, as in Trinidad and California, beds of clay shale 10 feet in thickness have been naturally baked at depth by combustion of the bituminous material in or associated with them.

Presence of Salt Water or Massive Salt Deposits

Salt is generally associated with oil, either in the form of crystalline masses, salt water or saliferous strata. Water which accompanies petroleum may be more saline than that normally present in sedimentary rocks. On the other hand, extensive masses of salt exist in many places entirely unassociated with oil, this being the case in Germany, Hungary, Kansas, Ohio and Ontario. Consequently, theories for the origin of oil often ignore any relationship with salt as a factor in the progress, assuming first that brine, where found in an oil field during drilling, is a normal constituent of deeply buried formations of marine origin. Perhaps the idea that salt and oil are necessarily associated is derived in part from the fact that the latter was originally discovered in the United States during the search for brine, which was at one time obtained from wells in Pensylvania and West Virginia. While the connection of oil with salt domes may be due merely to the fact that oil is concentrated against the salt mass as a suitable structure, nevertheless the frequent association of the two substances seems to indicate a possible relationship in origin in some instances. In West Virginia and central Ohio salt water is seldom found with the oil, although its absence there is not proved. Salt is not properly a criterion for oil occurrence, but the known occurrences of salt with oil is worthy of more thought.

Occurrence of Sulphur

In Louisiana and Texas oil is associated with sulphur in several places, and calcium sulphate or gypsum is a common mineral in some fields, leading to occasional assumption of a relationship between oil and sulphur. Some persons have supposed that occurrence of hydrogen sulphide is favorable to petroleum, but there seems to be no certainty of such connection.

Summary

Summarizing the foregoing statements on "surface indications," it must be acknowledged that they are not essential to the existence of an oil field, since many fields show an entire absence of such indications Where oil seepages exist, however, they generally indicate oil below the surface in greater or less quantity. Similarly, since it is known that asphaltic deposits are derived from oil, the substance has once existed in localities where such deposits exist, and the geologist must decide whether or not the conditions are such that oil is still to be expected or not the conditions are such that oil is still to be expected in quantity there. In many cases, where these deposits are of remote age, the oil has completely disappeared. Where gas exists without oil, there is no positive evidence of the latter; but since gas and oil are believed to be derived from a common source, it is important to look for evidence of oil somewhere in the same region.

Asphaltic deposits constitute a direct evidence that oil does exist or has existed in the vicinity, for these substances are the desiccated remains of heavy oils. In many cases it is possible to locate

[1]DeGolyer, E.; Econ. Geol., Vol. X, 1915, p. 664.

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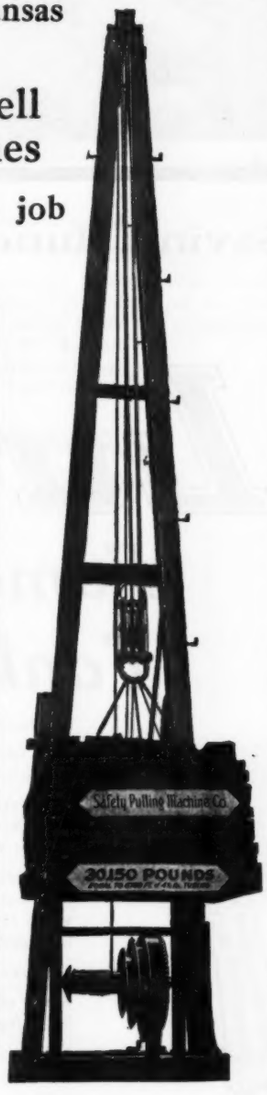

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the structure from which the asphalt has escaped. Hence it is important not to neglect the evidence of "surface indications"; even if their presence be unnecessary as a positive criterion.

Age of the Strata

Although oil occurs in greater or less quantity in formations of nearly all geologic ages, it has been found in commercial quantity only in those of Cambrian and later ages. The most important fields have been found in the Ordovician, Silurian, Devonian, Carboniferous, Cretaceous and Tertiary formations. Tertiary rocks are believed to yield more than 50 per cent of the world's production of oil.

The principal occurrences of petroleum, by ages, are as follow:

Stratigraphic Occurrence of Oil and Gas

Era	System	Country
Cenozoic	Quaternary	United States
	Tertiary	United States, Mexico, Trinidad, Russia, Rumania, Poland, Ukraine, E. Indies, Peru, Japan, Italy, Colombia, Venezuela, Persia, New Zealand.
Mesozoic	Cretaceous	United States, Canada, Mexico, Persia, Poland, Ukraine, Colombia, Venezuela, Ecuador, Argentine, New Zealand.
	Jurassic	United States, Germany, Argentine.
	Triassic	United States.
Paleozoic	Carboniferous	United States, Canada and China.
	Devonian	United States, Canada.
	Silurian	United States, Canada.
	Ordovician	United States, Canada.
	Cambrian	United States, Canada.

Source of Origin

The introduction of the question of source or origin among the criteria for oil occurrence is approached with hesitation for several reasons. In the first place, origin involves many theoretical considerations which, as such, may not be entirely worthy of inclusion among criteria which are to be accepted as proved facts. In the second place, any discussion of origin is likely to lead into extended controversy which is not the purpose of this paper; moreover, the writer is not prepared to undertake it.

The inclusion of source of origin among the criteria is important from one standpoint alone, that is, the presence or absence of a recognized possible source in any locality may be considered as constituting some measure of the relative probability of the existence of oil there in contradistinction to other areas. Whether we accept the views of Stuart on the one hand or of McCoy on the other—whether we agree with the former that oil may be either of sedimentary or biochemical origin, produced by changes taking place in a dolomitic limestone; or, if on the contrary, we accept the views of McCoy in their entirety, we must admit that the origin of oil, although obscure, constitutes a criterion of some degree. Where all evidences of source rocks are absent we can naturally avoid giving weight to the probability of oil as opposed to the numberless cases where possible sources of one kind or another exist.

A source of origin may not always be provable; nevertheless the geologist should ascertain that conditions do not prohibit the existence of a source. For instance, if the surface consist entirely of non-extrusive igneous rocks or if the strata be exclusively quartz sandstone from the land surface down to the underlying igneous or metamorphic basement, most geologists would accept the evidence as prohibitive to oil occurrence.

Another problem of origin is whether oil has been of marine origin or of fresh water origin or both. At the present stage of the science we may not be under the necessity of entirely excluding oil shales from the category of source rocks, though this point is one which will be ardently debated by many geologists.

With these few unsatisfactory remarks on the subject of origin, we will now pass to the various more positive criteria.

Reservoir Rocks

It is generally admitted that an oil or gas-bearing rock must be porous, though there are come exceptions to this statement. A porous stratum generally consists of sand, sandstone, porous or cavernous limestone, or dolomite. Examples of commercial deposits of fluid or gas in shale, joint cracks, etc. are limited that they appear to be exceptio and not a modification of the rule, are not given place in this paper. T presence of oil or gas in limestone be due to a natural porosity of the ro to simple solution or to changes con quent to the formation of dolomite. T exact area of occurrence may be co trolled, therefore, not by detailed str ture of the porous stratum but by internal characteristics.

In case of sandstone, likewise, the cality of occurrence is due not alone structure, but to continuity and poros of the stratum, and we therefore eli nate a discussion of the distribution oil deposits from the scope of this pa

A complete discussion of porosi should be undertaken from separa viewpoints as pertaining to (a) san (b) sandstones, (c) compact limeston (d) cavernous and fractured limeston (e) dolomites, (f) oolitic beds and (g fractured and jointed shales, but certa general statements may be advanced generally applicable to all of these ty of trata.

Cover Rocks

Although the bed of impervious ro immediately overlying an oil "sand" m be termed the "cap rock," this factor, li the porosity variations from point point in a "sand," is considered as longing to the subject of distribution oil or gas within a recognized field not to the broad question of the possi ity of its occurrence in an area; he it is not considered a criterion of occ rence. The cover rocks that would dinarily be considered suitable for h ing a commercial field within the por "sand" and preventing the escape of or gas therefrom are thick deposits shale, clay, or compact limestone, p erally hundreds or thousands of feet thickness, and the presence of such posits in any region may be consider a satisfactory answer to criterion No

Metamorphism

Geologists are in the habit of co sidering the question of matamorphi in a twofold light. First, are the ro destructively metamorphosed, or to extent that they can hold no oil? H they are generally hardened, veined, m eralized, or noticeably altered so t extreme metamorphism is apparent, e to the novice. Or, secondly, if they not destructively metamorphosed or tered to such a considerable extent, h changes taken place of more moder type such as might be indicated by adverse carbon ratio in coals or sh or determined by the presence or sence of certain waters or of water crystallization?

Judging by some opinions expre to the writer it may be necessary add a third subcriterion in the consid tion of metamorphism. Whereas first and second factors named are t of too great metamorphism to permit present occurrence of oil or gas, it be necessary to consider whether, on contrary, there may have been too li metamorphism to have formed or cumulated oil or gas. We someti consider that Pleistocene beds of sli folding have this defect. May such a c dition not also prevail in Tertiary be So far as known to the writer, this qu tion has been answered in the abstr but not satisfactorily with reference any particular region.

The last mentioned doubt invo much theory, which it is not proposed enter here. The relation of metam phism to pressure and heat is serio involved, and brings us back to question of origin, which has already b passed.

Until within a few years, we w unable to explain the absence of oil some of the principal mountain sy of the world; and no guide had b discovered by which we could delimit unmetamorphosed regions where oil be expected from the regions of m morphism where it certainly does exist. In 1925, however, White[1] p lished his paper showing that in

[1]White, David: Some relations in e between coal and petroleum, Jour. W Acad. Sci., Vol. V, No. 6, 1915, pp. 18

[2]Fuller ratios of Econ. G 43; Carb Oklahom Econ. G [3]Semm No. 159,

regions where Carboniferous coal beds exist, the ratio of fixed carbon decreases in a regular manner from the anthracite regions of those of semibituminous coals to the softer bituminous coal regions, and that in traveling from soft to harder coal regions this ratio passes a line beyond which no commercial oil fields may be expected.

The value of this test by isovols was subsequently enhanced by papers of Fuller[2], Semmes[3] and others. Many geologists are inclined to doubt the efficacy of carbon ratios, yet in general where isovols, or carbon ratios, have been studied we find that fields of commercial importance seldom exist beyond the 65 per cent line of fixed carbon and that commercial gas fields seldom exist beyond the 70 per cent line. A carbon ratio also doubtless exists for increasing depth in any locality; but this has been less studied than the ratios in the surface rocks.

Structural Criteria

The last great class of criteria considered here comprises those of a structural nature. In the early days of oil geology, structure was the principal and almost the only factor studied, after elimination of the large areas of igneous rocks and those of obviously intense metamorphism. With advance of the profession the factors described in preceding paragraphs have been recognized and their importance appreciated, and structural geology, although as important as ever, has had to take its place as the final fundamental criterion.

Structural criteria may be grouped briefly into a number of essentials, generally given careful consideration by a geologist, but which by their nature do not permit enumeration as part of any structural classification. Or, if they could be enumerated, they would not partake of the nature of subclasses or subtypes of structure, but as qualities due to various structural types. Some of these conditions are, size, height, breadth, flatness, amount of closure or its absence, and lastly the size of the "collecting area" (occasionally termed in geologic parlance the "drainage area"). It appears that none of these conditions has any definite effect on the amount or existence of production. Yet most geologists may be inclined to express themselves on the merits of the following statements, as applicable after the other criteria have been found satisfactory:

Conclusions

1. A dome or anticline of small size will now seldom be avoided by most oil geologists. On the other hand, a dome of tremendous proportions has been in many cases found too large to concentrate oil in commercial quantities except in superimposed "pimples."

2. A high dome or anticline is presumed to be advantageous; but it may be so high as to have lost the oil or gas from its crest through metamorphism or erosional leakage.

3. Some geologists have considered a broad anticline as favorable for gas and a narrow one for oil; but these hypotheses can hardly be said to be more than of every general application even if true at all.

4. In sands without water a flat structural crest has generally trapped more oil than a sharp one. In sands with water little effect may have ensued from differences of flatness.

5. Height of "closure" may mean much or little. However, in areas of great hydrostatic pressure the oil may have been pushed out of a structure of slight vertical closure, but, on the contrary, held in one of considerable closure.

6. The size of "collecting area" is unquestionably important. When the collecting area is of small size, it generally appears obvious that a relatively minor amount of oil can have been driven from it to the dome or anticline—whatever the cause of the migration may be. The "collecting area" may be the most important of the modifying influences under structure.

In conclusion the writer wishes to emphasize the fact that this paper, in its present form, is incomplete and preliminary. He will greatly value all comments that may be addressed to him which will help in the completion of a paper on the criteria useful in predicting oil occurrence so far as at present known.

[2]Fuller, M. L.: Relation of oil to carbon ratios of Pennsylvania coals in North Texas. Econ. Geol., Vol. XIV, No. 7, 1919, pp. 536-42; Carbon ratios in Carboniferous coals of Oklahoma and their relation to petroleum. Econ. Geol., Vol. XV, No. 3, 1920, pp. 226-235.
[3]Semmes, D. R.: Mining and Met., Bull. No. 159, Mch., 1920, p. 2.

WHY GERMANY LIFTED ITS TAX ON GASOLINE

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.—A recent cable dispatch from Berlin stated that plans for taxation of automotive gasoline have been definitely abandoned in Germany.

This abandonment of the gasoline tax is the culmination of a long struggle relating to the economic aspects of the gasoline tax in its relation to industry. It is the same contention that has been waging in England and was recently decided there in favor of keeping all import and excise tax off gasoline. In contrasting this policy adopted both in England and Germany with the tendency in the United States to increase gasoline taxation constantly, it should be borne in mind that in both of these foreign countries efforts to increase revenue are only halted when it is believed some serious injury will be done out of proportion to the benefit attained.

There was what was regarded as a burdensome horsepower tax on motor cars in Germany and the gasoline tax was suggested as a means of lifting the unpopular tax. The present taxation of passenger cars and motorcycles in Germany is based on an arbitrary taxable horsepower formula developed almost 20 years ago and as levied is a high rate on the car of average cylinder dimensions. The results have been that German manufactures were cramped in their development of adequately powered engines through the demand of their domestic market for cars in a low tax class and that American cars sold in Germany have been penalized by their amply dimensioned engines.

The handicap imposed on the German manufacturers by this condition has resulted in the extreme curtailment of their export trade through barring them from foreign markets where motorists have learned to prefer other types of car with their quick acceleration, easy traffic control, hill climbing ability and endurance properties.

The German industry, it is said, has now realized that it is no longer possible to hold its markets, foreign or domestic, with its small 4-cylinder cars equipped with underpowered engines. It has turned to the production of 6 and 8-cylinder engines providing increased flexibility and power through the use of larger bore and stroke dimensions. It is therefore natural that there was a movement on foot to replace the present system of taxation by the introduction of a gas tax.

Opposition by interests opposed to the proposed tax has, according to reports in Germany, definitely eliminated all chances of a gasoline tax in Germany within the next few years. The ministry of finance, which has sided with the opposition, also claims that the administration of a fuel tax would absorb 40 per cent of the receipts and it has therefore decided to find another basis for taxation of automobiles or leave matters as they stand.

FINE FOR SUNDAY DRILLING

CHATHAM, Ontario, Apr. 23.—H. Bannister, justice of the peace of Okotoks, Alta., recently imposed a fine of $15 and costs on the Royalite Oil Co. for drilling on Sunday. The fine was imposed in connection with the drilling of Royalite No. 7 rotary test, and the company stated that as the well was being drilled without casing, continuous drilling was necessary if serious caving was not to result.

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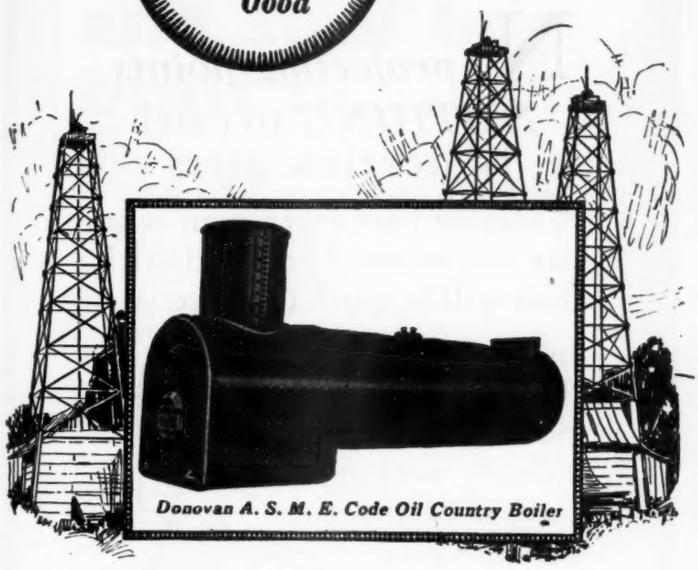

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FUEL OIL DEMAND ON SEABOARD WILL BE ON AN ENLARGED SCALE

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

The principal companies selling fuel oil on the Atlantic Coast report that they have been largely sold up on their 1927 contracts. In fulfilling their contracts they have drawn somewhat heavily on storage, and at the present time there is a scarcity of heavy fuel oil in the East. Irrespective of an eventuality in coal, the fuel oil demand as evidenced by advance sales and contracts for the coming year will be on an enlarged scale, and, in view of the tanker situation, will keep the major companies busy trying to meet their obligations.

The present price of Bunker C fuel oil is $1.75. The problem facing the companies is to get the oil into the East at costs not in excess of their contract figures. As the matter stands at the present writing with the price at $1.75, it costs somewhere around $1.85 to move Pacific Coast heavy fuel oil to the Atlantic Coast and something like $1.90 for fuel oil from Gulf Coast points delivered at eastern seaboard points. These costs are divided approximately as follows: West Coast fuel oil, 70 cents, transportation, $1.15; total, $1.85. Gulf Coast fuel oil $1.50, transportation, 40 cents, total $1.90.

Bunker Oil Advance

According to some authorities, irrespective of any disturbance to the coal situation, there is likely to be an advance in bunker fuel oil before conditions ease off. If the coal situation should result in a drift back to fuel oil in convertible industrial plants, this could not occur for some little time and in the meantime there might be some improvement in the tanker situation so as to offset the present condition of scarcity in the East. Nevertheless, from every angle, it is figured that a disruption in coal would react favorably in fuel oil.

It is pointed out that in Great Britain fuel oil consumption has advanced materially as a result of the coal strike. A comparison of imports into Great Britain follows:

	Fuel Oil Imperial Gallons	Gas Oil Imperial Gallons
1926	398,443,393	117,042,798
1925	334,489,350	72,652,528
1924	385,581,996	67,906,598

These figures do not tell the whole story. It is estimated that 30 per cent of the total domestic requirements last year were met by the output of British refineries, this representing a larger proportion than ever before, and a considerable amount of the increased consumption for fuel oil and gas oil has been supplied from this source.

Experience of England

An interference in coal distribution and increases in coal prices, would have more direct effect on the demand for industrial fuel oil than on marine oil. This was the case in England where there was a large increase in the use of fuel oil by industrial plants, despite the extremely conservative attitude taken with regard to converting over to oil fuel because of doubt as to future oil supplies and Britain's dependence on outside sources for its crude.

Many industrial plants in this country, on the other hand, have shifted from coal to oil depending on the relative prices of the two fuels and would not hesitate to do so again if necessary. However, they would have to be satisfied that fuel oil will be available at attractive prices, and at the exact present the eastern situation in fuel oil is not conducive to reassurances on that score.

The apparent indirect effect of coal disorganization is in expanding consuming agencies for fuel oil as against coal in a permanent way. The British coal strike in a good many particulars has furthered the use of the fuel oil, particularly in shipping. The fact that coal sources were disturbed undoubtedly speeded up the building of oil-burning, and particularly Diesel, fueled ships. While it is true that merchant shipping is virtually committed to motor ships from the angle of competition, the British coal situation could have no other effect than to give impetus to the Dieselization program of world shipping.

Growth of Demand

Eastern authorities report a steadily increased demand in fuel oil for bunkers and in Diesel oil for ships, and, in connection with the supply and demand at the present time, also point to the decline in the movement of Mexican oil which has contributed largely to the bunker oil supply. During the week ended March 23, receipts of Mexican oil at Atlantic Coast ports amounted to a daily average of 6,000 bbls.—one cargo—probably the lowest weekly figure since Mexico became a factor in the world's oil market. While this does not accurately represent the falling off, the declining tendency is shown in receipts averaging 49,000 bbls. in January, and 40,000 bbls. in February. Last March receipts of Mexican oil averaged 152,000 bbls. a day.

South American oil, especially from Venezuela, is being shipped into the eastern ports in increasing quantities to offset the loss in Mexican oil, but the scarcity of tankers is affecting this movement as well as the movement from the Pacific Coast.

Demand for Shipping

The increased demand for bunker fuel oil is largely attributed to an improvement in shipping, which for some little time has done little more than mark time. Conditions in the world vessel movement of commodities are reported favorable for the balance of the year.

The big increase in oil-burning sea tonnage has been in the oil engined, or Diesel ship. Total world oil-burning tonnage as of June 30, 1926, was 20,827,068 tons, against 19,372,615 tons the preceding year. Of the total in 1926, 17,791,690 tons represented steam engined vessels, against 17,215,342 tons in 1925. The big growth was in the motor ship tonnage, amounting to 3,035,375 tons in 1926, against 2,157,273 tons in 1925. World oil-burning tonnage is shown in the following table:

	Oil-Burning Vessels		
	Steam Gross Tons	Motor Gross Tons	Total Gross Tons
1926	17,791,690	3,035,375	20,827,068
1925	17,215,342	2,157,273	19,372,615
1924	16,470,202	1,558,732	18,028,934
1923	15,239,946	1,248,158	16,478,104
1922	13,838,178	1,166,370	15,004,548
1921	12,415,181	959,471	13,374,652
1920	8,345,913	693,334	9,039,247
1914	1,527,728	194,019	1,721,747

Last year of all the tonnage sent down the ways more than two-fifths represented vessels equipped with internal combustion engines. In 1921, the proportion was less than 8 per cent.

Shipping Board's Dieselization

American shipbuilding has lagged in Dieselization but the Shipping Board is going ahead with an important program involving the expenditure of $25,000,000. Under this program six vessels, costing $10,000,000, have been built and are in service. The sum of $15,000,000, yet unexpended, is sufficient to provide from 20 to 25 more motor ships, according to the Shipping Board, although the expense of converting the vessels from steam power may be greater than in the case of the first group. As bearing on the fuel oil situation the Shipping Board's statement as regards the Dieselization program is of interest:

"The purpose of the Government's motorship program are twofold: Primarily it is intended to give the American merchant marine a nucleus around which a modern fleet can be constructed, and to bring at least some of the American lines to a position in which they can compete effectively with ships of other flags; secondly, it is purposed to stimulate the design and manufacture of Diesel engines by Americans and to develop

skilled workmen and Diesel engineers among citizens of the United States.

"The Dieselization program may be continued by the board until all the funds available have been utilized."

Uniform Accountancy Committee Increased As Work Progresses

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, 30 Church St., New York

With the oil companies issuing their reports for the year 1926, it is of interest that the larger organizations are for the first time applying the uniform accounting methods developed for the industry through the American Petroleum Institute. The Gulf Oil Corp., in announcing its recent debenture issue used for the first time the uniform form of balance sheet.

Progress in the work leads officials in charge to the opinion that this year will see the completion of the job, so far as balance sheets and income accounts are concerned. The general committee on uniform accounting will then take up such special matters as cost accounting, standardization of income tax forms, uniform partnership accounts and warehouse accounting, and other related questions, which it is believed will take about two years more.

According to this schedule the petroleum industry will have finished in five years the work on uniform accounting methods, a great amount of which work will be in actual application. In the few industries which are on a uniform accounting basis, the result has been attained only after as many as 20 years of preliminary work, education and development.

The membership of the Institute's committee on uniform methods of oil accounting has been increased to include the following:

M. A. Chambers, Panhandle Refining Co., Wichita Falls, Tex.; A. B. Chesebro, Carter Oil Co., Tulsa, Okla.; Wesley Cunningham, Petroleum Accountants Assn. of California., Los Angeles, Calif.; Albert Hill, Atlantic Refining Co., Philadelphia, Pa.; Ira McFarland, The Texas Company, Houston, Tex.; P. G. Williams, Associated Oil Co., San Francisco, Calif.

The resignation of C. B. Ware, Standard Oil Co. of New Jersey, having been accepted, his place on the committee will be taken by H. F. Davis of the same company.

In February M. W. Mattison, chairman of the committee, attending meetings of the Petroleum Accountants Association of California in Los Angeles, arranged by Wesley Cunningham, assistant comptroller, General Petroleum Corp., president of the society, who appointed a committee of nine to chart each of the nine divisions showing assets and liabilities, operations and expense and income. Its report will be available early in April when there will be a meeting of the Pacific Coast members of the general committee. Mr. Mattison will attend the meeting and as soon as this is completed will call a meeting at Houston of the Texas, Oklahoma and Louisiana committee members to consider these charts of accounts. Subsequently he will meet other members of the general committee in Chicago and New York.

In this manner it is hoped to get before each committee member completed charts of all nine divisions, including income, operating and expense accounts, so each member will have approximately 60 days to summarize suggestions for the general meeting late in June or early in July in Chicago or Denver. Such changes it is expected will have been digested by September 15. Beginning in October group meetings will act on the chart forms and the finished job is expected to result by November 1 and be ready for general circulation by December 1, before the annual meeting of the Institute when the income account charts will be ready for the approval of the board of directors and for general adoption by the oil companies.

The directors of the institute at the last meeting at Tulsa approved the general balance sheet and chart of accounts, representing the work of two years. Mr. Mattison has announced that since the first of this year the balance sheet has been adopted by a number of the larger companies and made the basis of their accounting.

The work this year is on the completion of the charts of accounts for the various operating divisions of an integrated oil company. There will also be prepared for each of these divisions an income and expense account. From such income statement will be prepared the general income account, which will be recommended for publication in connection with the publication of general balance sheets.

Accounting representatives of the Mid-Continent Oil and Gas Association and of the Mid-Continent group of the general committee have prepared complete charts covering the production of oil and gas and natural gasoline. A tentative form of general income account has been prepared and is being worked out. The assembling of the work of the various groups will be accomplished at the general meeting in June or July.

FURTHER INTEGRATION BY JERSEY COMPANY

Standard Oil Co. of New Jersey has taken another important step in furthering the integration of its position as a completely rounded out oil unit, says an article in the Wall Street Journal.

This follows its well defined policy of making itself so far as possible independent for its crude oil supply and to furnish its own transportation of oil from producing fields.

Its latest move has to do with pipe lines of its subsidiaries in Texas and Oklahoma. In the former state it consists of laying a new $8,000,000 trunk pipe line to open up the big West Texas producing area and completion of a $12,000,000 project tying in the Panhandle area with its main pipe line and expanding capacity of the latter to the Gulf Coast to handle Panhandle crude. This investment of something over $20,000,000 was made through Humble Oil & Refining Co. in which New Jersey has about 65 per cent stock interest. It was largely the reason for Humble recently selling $25,000,000 of debentures in the public market.

In Oklahoma, Standard of New Jersey has been the biggest beneficiary of Seminole Pool's prolific production, its subsidiary, Carter Oil, producing nearly 60,000 bbls. a day. To handle this and oil purchased, New Jersey's pipe lines have a capacity for 80,000 bbls. a day out of Seminole. In all of Oklahoma, New Jersey probably can move 120,000 bbls. daily through its lines.

It is of more than passing interest that practically all the crude so moved goes south. Oklahoma crude goes to New Jersey's subsidiary, Standard of Louisiana, through tie-in of lines and moves to Baton Rouge; Texas crude goes to Humble Oil at Houston. When Humble finishes its line to West Texas, a new shipping port, Corpus Christi, will be developed as terminus of this 40,000-bbl. line.

This is the remarkable change in New Jersey. At dissolution in 1912 it had virtually no pipe lines of its own. Today it has the largest in the country and sufficient to take care of refineries. In 1912 it produced only 10 per cent of its crude needs and bought the balance from the purchasing companies like Prairie Oil and Ohio Oil. Now it produces more than 50 per cent of its crude needs and its own pipe line subsidiaries buy practically all of the balance.

Various moves by New Jersey toward independence in the matter of crude supply have occasioned huge investments. They required years before investment fruited. One of the most notable is the upwards of $45,000,000 it and a subsidiary spent in Colombia, S. A., to develop production and pipe line to the coast. The first oil was moved last July, 30,000

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bbls. daily, and with completion soon of additional line capacity will be raised to 50,000 bbls. daily. The producing area has 100,000 bbls. potential production, so further addition to pipe line is likely.

In Peru a subsidiary has 25,000 bbls. production daily moving to market. With the extension to Colombian pipe line completed, New Jersey soon will be getting 75,000 bbls. daily from these two countries. Its refineries handle about 380,000 bbls. daily, all over the world, so South American crude alone will take care of 20 per cent of this.

New Jersey invested nearly $75,000,000 in Humble Oil. When Humble completes its new line to West Texas, opening up to market its own production and others now held back by lack of transport, that company will have total pipe line capacity for moving 220,000 bbls. of crude oil daily to Houston and Corpus Christi.

As Humble has total refining capacity for about 90,000 bbls. daily and is currently moving 175,000 bbls. a day through its pipe lines, the extent to which the parent New Jersey company draws on Humble for crude may be appreciated.

Standard Oil of Louisiana, too, is a very important unit and its lines in connection with those of the New Jersey-owned Oklahoma Pipe Line Co. furnish another big source of crude oil supply. Louisiana is one of the biggest refiners, but joint pipe line runs of it and Oklahoma Pipe Line are beyond requirements of Louisiana's refinery, particularly in view of recent Oklahoma expansion.

NAVY WELLS SHUT IN; WILL BUY FUEL OIL

Wells in the Elk Hills, Calif., oil reserves turned over to the Navy by virtue of the cancellation of the lease to the Pan-American Oil Co. under a recent decree of the Supreme Court of the United States will be closed down and the Navy's policy will be to conserve such oil in the ground, Secretary of the Navy Curtis D. Wilbur, announced.

Decision to this effect was made after the Secretary had rejected bids submitted by three oil companies for the exchange of royalty crude oil from the Elk Hills reserve for fuel oil and Diesel engine oil at tidewater points in California or to the storage tanks at Pearl Harbor, Hawaii.

An agreement has been consummated, the Secretary said, with the Belridge Oil Co. by which it will pay 55 per cent compensating royalty for all the increased production due to shutting down the 19 producing wells which are now in operation on the reserves, which are the property of the Government. The Belridge company owns adjoining wells and, when the Navy's wells are shut in the production from the Belridge company's wells increases. The Belridge company also agreed to inspect the Navy's wells daily and see that they are kept in proper shape. This agreement, the naval secretary said, supplements one with the Standard Oil Co. of California, in relation to the wells adjoining Section 36 of the Navy leases.

Royalty oils derived from the reserves which, Secretary Wilbur said, amount to between 200,000 and 250,000 bbls. a month, will be sold by the Navy at the market price, which he said is now about 75 cents a barrel, and the proceeds turned over to the United States Treasury.

Regarding the Pearl Harbor oil storage tanks, turned over to the Navy by court decree, Secretary Wilbur said an inspection has shown that the reserve storage tanks there had been so treated with a coating of fuel oil as to prevent rust and that no further deterioration will occur inside of two or three years.

"The Navy Department will expend in total expenses, including the cost of personnel and repair and upkeep of the oil tankers and the cost of provisions for the crews of the vessels, about $1,000,000, to transport from the Pacific Coast to the Pearl Harbor tanks enough oil to completely fill them, that is 2,600,000 bbls. There are at present in the tanks about 1,500,000 bbls. of oil.

The naval secretary declared in connection with the bids rejected, that there was a variance in the contract price between the cost of delivery at the Pacific coast and the cost of oil delivered at Pearl Harbor of about 4 cents a barrel "which is approximately what it would cost the Navy Department to transport the oil, assuming that we put these tankers into commission, man them with Navy personnel and charge the pay of the officers and enlisted personnel and provisions against the transportation of the oil."

Congress probably will be asked to make necessary appropriations to cover the expenses of storing enough oil at Pearl Harbor, to provide and approve a plan by which the Navy has a permanent reserve storage at Pearl Harbor of 4,100,000 bbls. of oil, Mr. Wilbur stated.

"This course of action is a modification of our announced policy of transporting the oil to Pearl Harbor, due primarily to the fact that we believe it is more advantageous financially to the Navy under consideration of the bids received and rejected," Secretary Wilbur said. "It will be better to sell the crude oil at the current price prevailing in the field and buy whatever fuel oil may be needed at current prices and transport the oil in Navy tankers to the storage base. The financial gain to the Navy between the two methods outlined amounts to about $600,000 on the amount of oil necessary to fill the tanks."

LOCKPORT, LA., OIL GOES TO NEW JERSEY

HOUSTON, Tex., Apr. 23.—The Vacuum Oil Co. is now making direct shipments of crude from its Lockport, La., Pool to its refinery at Paulsboro, N. J. The first consignment of 75,000 bbls. has gone forward. Deepening the Calcasieu River and the Intercoastal Canal enables tankers to reach the company's docks at Lockport, 5 miles northwest of Lake Charles. Heretofore the crude has been barged to Texas City, reloaded into tankers and then forwarded to Paulsboro refinery.

W. A. Vinson of Houston, chairman of the Texas-Louisiana operating committee of the company; W. C. Thomas, general superintendent of drilling and production in the Gulf Coast region; W. B. Sutton, head of the land department; William Hastings, superintendent of the company's terminals at Texas City, and Ernest Smith, manager of the marine department, were among the officials present when the first tanker was loaded at Lockport, La.

The company shipped 352,510 bbls. during February and 383,500 bbls. during March.

MEXICAN PRICES HELD; PIPE LINE MILEAGE

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.—Preliminary statistics of the Mexican petroleum department show, according to advices from Acting Commercial Attache George Wythe, that Mexican petroleum prices remained constant throughout 1926, as follows: F. O. B. tankers, not including tax, heavy crude, 14.47 pesos per cubic meter ($1.15 United States currency per barrel); light crude, 16.98 pesos per cubic meter ($1.35 United States currency per barrel).

Construction of pipe line reached a total of 206,119 meters in 1926, divided into 165,190 meters in the Rio Panuco district; 7,990 in the Tuxpam region, and 32,939 in the district of the Isthmus of Tehuantepec. The greatest extension of pipe line was 41,682 meters, constructed by the National Petroleum Control Administration between its Chapacao fields and the terminal on the left bank of the Rio Panuco. A pipe line of 6,043 meters was completed between the Altamira region and the left bank of the Rio Tamesi, which forms part of the system connecting Altamira with the terminal Preito on the left bank of the Rio Panuco.

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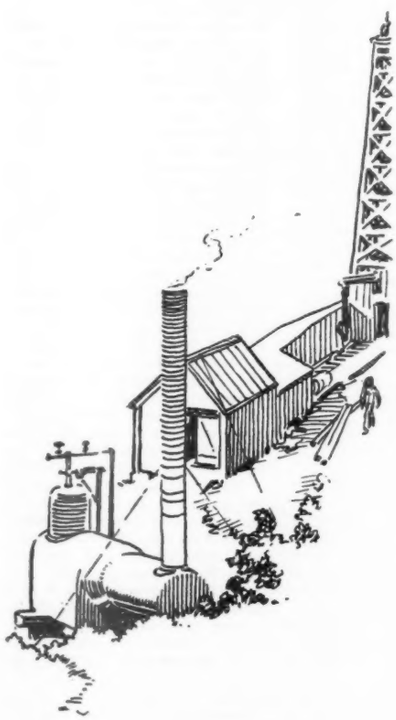

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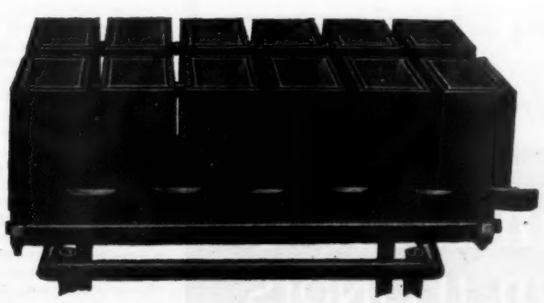

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NO RESTRAINT OF TRADE IN OIL FOUND BY TRADE COMMISSION

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.— Anyone who analyzes the annual report of the Federal Trade Commission submitted to Congress cannot fail to come to the conclusion that the facts brought out concerning the activities of this commission during the last fiscal year are highly complimentary to the oil industry.

As everyone knows, the Federal Trade Commission has for years been one of the most active critics of all classes of corporations, and has frequently investigated the oil industry. Indeed, petroleum has been foremost in the attention of this body of investigators and it is quite certain that no irregularity in the business methods of the oil industry, especially concerning conduct that might give rise to a suspicion of restraint of trade, has escaped their watchful eye.

The annual report of this commission cites 46 cases in which there have been issued orders to cease and desist, there have been 81 cases investigated with the result of orders of dismissal, and there were 156 cases of complaints pending July 1, 1926.

In other words, cases pending and disposed of during the last fiscal year by the Federal Trade Commission number 283 and there is not a single instance of any case involving an oil company that shows any action interpreted as a restraint of trade with the single exception of the action against the Standard Oil Co. of Kentucky where the charge was that a merchandise system was put in effect which specified uniform prices for the resale of stoves and heaters by its retail dealers. Of course, this is merely a side issue and in no sense applies to the production, refining, or distribution of petroleum in its general aspects. It was not until a few years ago that a case brought by a druggist of Washington, D. C., O'Donnell, resulted in a decision by the Supreme Court of the United States holding the resale price of an article fixed by the manufacturer or wholesale dealer is in violation of the Sherman Act. In no sense could such a case reflect upon the general conduct of the petroleum industry and in that single case the commission after a stipulation entered in lieu of testimony, entered an order to cease and desist on November 28, 1926. In other words, after the matter was fully considered, the Standard Oil of Kentucky, simply agreed to abide by the views of the commission and nothing more was done about it.

Sustained by Court

However, on November 23, the Supreme Court of the United States decided in the case of the General Electric Co., that a manufacturer does not violate the common law or the antitrust acts by seeking to dispose of his product directly to the consumer, and fixing the price by which his agents transfer the title from him directly to such consumer. So it will be seen that the Standard Oil Co. of Kentucky would now be actually within its legal right, as since determined by the Supreme Court, fixing the prices at which its agents were to dispose of stoves and heaters.

The only other cases relating to petroleum in any way among the 46 in which orders to cease and desist were entered after hearing involved in one instance the use of a label "U. S. Quality Paint," by an oil company on the ground that the paint was not made according to any government specification, or requirements, and the other was of an oil company that had given sums of money to employes of purchasers of textile oils and allied products, without the knowledge and consent of employers and principals, as an inducement to such employes to recommend the products of their corporation thereby gaining preference in the sale of its goods. "Both of these acts were taken as violations of Section 5 of the Federal Trade Commission Act against what is termed "Using Unfair Methods of Competition in Commerce."

No one of those three cases out of the entire list of inquiries could possibly constitute any legitimate criticism of the oil industry in all of its vast transactions. There was no prosecution in any of these cases, and they were fully disposed of by the commission's action.

Of the 81 cases in which orders of dismissal were issued, two related to petroleum, one being a stock-selling organization, and the other regarding the labeling of petroleum distillates having no relation in any essential way to the great business of production, refining and distribution by oil companies.

Case Dismissed

The third case that was dismissed after hearing, thus giving a complete vindication after complaint was in the matter of the Standard Oil Co. of New Jersey, in the acquisition of one-half or more of the stock or share capital of the Humble Oil & Refining Co., the commission charging that the effect of such acquisition was substantially to lessen competition between the Humble Oil & Refining Co. and the subsidiary of the Standard of New Jersey, the Standard Oil Co. of Louisiana. It was alleged that this acquisition restrained commerce in those sections in which these companies were engaged in alleged violation of Section 7 of the Clayton Act. The case was fully heard, and its dismissal was a confession that the commission had brought its complaint without evidence to sustain it.

Still more significant is the fact that at the end of the fiscal year, the Federal Trade Commission had before it 156 complaints pending. Five of these complaints had not been released so their nature could not be known, but 151 were fully cited, as to their details and the record shows that seven of them relating to oil were merely actions against corporations and persons selling stock under alleged misrepresentation of the value of the company's holdings; in other words that as a rule they were what are known as speculative companies except in one case, a retail company not in fact in the general class of petroleum companies at all as it merely put upon the market a lubricating oil with an agreement of the maintenance of the retail price. The complaints made against other companies charge false and misleading statements concerning their holdings.

It is safe to say that not a single company, corporation, or person in this list of 156 complaints pending July 1, 1926, was in any way affiliated with the American Petroleum Institute or in any substantial way with the oil industry.

Probably no industry in the United States has a clearer record of being free from any violation of the Sherman Antitrust Law, the Federal Trade Commission Act, the Clayton Act, and the Export Trade Act, than has the oil industry as shown by this record officially published by the Federal Trade Commission.

CASPIAN CONCESSION

The Pan American Co., the London Oil News says, is to participate in the oil concession in the Caspian Sea, which was granted from the end of 1924 for 35 years, to a Norwegian group headed by F. Stoepen. The concession is situated on the Busatchi Peninsula on the east coast of the Caspian Sea, on the shores of the Gulf of Kaidak.

SELF-SERVE GASOLINE PUMP

An automatic machine has been installed at Cleeve, between Bristol and Weston-super-Mare, England, for the supply of petrol. By inserting a shilling in the slot and turning a handle the motorist obtains a shilling's worth of petrol. This machine is the first of its kind in the country.

CENTRAL WEST FIELDS

(Continued from Page 68)

ner of the C. D. Swartz 163 acres, Lot 17, Cynthian Township, Athens County, the gas being found in the salt sand at 1,029 feet.

Empire Gas & Fuel Co.'s second test on the Robert J. McKelvey 40 acres, Section 1, Monroe Township, Coshocton County, was a dry hole. The well is in the center of the lease. The Ohio Oil Co. is drilling a well on the Adam Markley farm, same section.

Around Cleveland

The most active spot during the late development in Central Ohio is centered around Cleveland, in Dover Township, Cuyahoga County, where seven completions are reported. Arthur and Simpson's test, 1,000 feet from the north line and 500 feet from the east line of the J. Gregory 49 acres, Lot 7, is close around 1,000,000 feet initial, while their test 500 feet from the north line and 50 feet from the west line of the C. L. Harrison 10 acres, showed better than 2,000,0 0 feet, and No. 2 well, 200 feet from the north line and 800 feet from the west line of the H. Martin 29 acres, Lot 15, proved to be a dry hole. McGrath and others' test in the northwest corner of the Cheskie seven acres, Lot 18, is a light gasser. Hulse & Kundtz's test in the northeast corner of the M. Lippers 11 acres, Lot 26, is also a light gas well. Same firm's test in the northeast corner of the G. L. Cooley 8 acres, same lot, is a duster. The Logan Gas Co. has a dry hole in a test 200 feet from the north line and 600 feet from the west line of the H. L. Rutherford 25 acres, Lot 37, and drilling No. 2 in the northwest corner of the Demott Winslow 40 acres, Lot 26. Wiser Oil Co. is drilling No. 1 on the Emma Bail property.

Guernsey County

A well-known operator sends in the following interesting news, taken from the Daily Jeffersonian of Cambridge, Ohio:

"Anson Henry Russell, of Cleveland, experienced oil and gas operator, has purchased the Niagara sand miner rights of acreage controlled by the Gombert Oil & Gas Co. in Monroe and Washington Townships, Guernsey County. Announcement of the deal was made Thursday, but the consideration was not divulged.

"The transaction is one of the most important consummated in the Cambridge Field for some time as it means a thorough testing of the Big Lime in the northern section of Guernsey County will be made, giving promise of opening up an oil and gas field north of Cambridge that will rival in wealth the Knox-Adams-Westland-Jackson Township Field, which has become the largest gas-producing territory in the middle west and one of the heaviest in the country.

"Mr. Russell has been negotiating with the Gombert Oil & Gas Co. for some time for purchase of the deep sand rights on its acreage in Monroe and Washington Townships. Involved in the transactions are 1,700 acres, including the William Branigar and J. P. Edenburn leases on which there are 12 producing Berea sand gas wells, the production going to the Ohio Fuel Gas Co., under contract. This property is in Sections 11 and 20, Monroe Township, and 15 and 16 in Washington Township, Guernsey County.

"The Gombert Oil & Gas Co.'s Berea sand gas wells have been producing for a number of years and are considered among the finest shallow sand wells in the state. They are located in the vicinity of Birmingham.

"Development of the Niagara sand upon the acreage he has secured is proposed by Mr. Russell who will start in the near future drilling two Niagara lime wells, which should be reached at a depth of approximately 3,800 feet. The Gombert Oil & Gas Co. acreage is located on a defined structure, according to a geological survey of the territory, and has been considered by operating companies as most favorable for big production in the deep sand since the Niagara lime has proven so prodigal in mineral wealth in townships adjacent to Cambridge.

"Several months ago the Ohio Fuel Gas Co. purchased the mineral rights on approximately 7,000 acres in townships located to the north of Cambridge. This acreage has not been tested to the Niagara lime. Whether an entirely new Niagara sand field to the north of Cambridge will be opened during the coming summer depends largely upon the results shown by tests now being drilled. These are scattered over a wide area, the locations being governed by geological formation."

KENTUCKY-TENNESSEE

(Continued from Page 68)

Garland D. Sledge Account No. 3 completed No. 5 well, 100 feet from the north line and 600 from the east line of the E. J. McCain 157 acres, 4 miles southwest of Bowling Green, at a depth of 1,078 feet, for a 3-bbl. pumper, 25 bbls. initial production.

"About 1,500 wells, producing an average of 24,000 bbls. of oil each month, bring an average revenue of $31,920 each month to oil producers in Warren County, according to figures based on reports from the Illinois Pope Line Co. here, by their district superintendent, O. C. Caldwell," says the Times-Journal, of Bowling Green, Ky.

"The oil wells are stretched over the southern section of the county, several pools being very productive at the present time, among them being the Davenport. Activity in sinking wells has slowed down for the present, but a 25-bbl. well was brought in recently on the McCoin lease in the White Stone Quarry Pool.

"The oil boom is over," Mr. Caldwell said, "but there is still a good field in Warren County for the conservative producer, who is content with a small but steady production."

Mr. Caldwell pointed out that the habit among local operators of failing to seal abandoned wells is proving ruinous to the local pools, and has caused the loss of hundreds of thousands of dollars of good crude oil. Over $100,000 worth of oil was lost in the Keene Pool in Allen County by failing to seal abandoned wells after the piping had been withdrawn, Mr. Caldwell stated.

"The water rises in these abandoned wells, floods the subterranean passages and forces the oil deposits to other pools that are often lost. This could be remedied easily by sealing all abandoned wells. If there is a state law in Kentucky against failing to cap the wells, it should be enforced, and if there isn't a law one should be enacted."

Among the most interesting phases of the oil industry here is the pumping station of the Illinois Pipe Line Co., located on the Morgantown Road, about 2 miles from Bowling Green. Two large motors drive two pumps, forcing the oil through the pipe line to Owensboro, where it is relayed by another pipe line to the refineries at Lawrenceville, Ill. A total of 427 pumps in Warren and adjoining counties pump oil through over 400 miles of pipe lines to two large tanks of 20,000 bbls. capacity each, at the pump station. The oil is in turn pumped out of the tanks to Owensboro at the rate of 114 bbls. per hour.

A radio station at the plant at Bowling Green is working every day in communication with other offices of the company at Owensboro, Lawrenceville, Findlay, Ohio, and other cities.

Tennessee

Another sensational strike was made when the Celina Oil Co., R. E. Blick, president Clay County Operators, brought in No. 2 well on the Rad Hawkins, 3 miles north of Gainesboro, at the mouth of Lock Branch on the Cumberland River, in Jackson County. The oil was struck at about the same depth as in well No. 1 on the same farm and flowed over the mast of the drilling rig at better than 90 bbls. per hour, or at the rate of more than 2,000 bbls. a day. It was shut in soon after because of shortage of sufficient storage. More tanks

(Continued on Page 139)

MARLEY

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Spray Pond Nozzles

THE need for a Spray Nozzle that will deliver a fine uniform spray with low operating pressure and less clogging, has been fully met with the Marley. The design is such that it creates a remarkable whirling motion that imparts a full free break-up to the discharge. And the large rectangular venturi shaped inlet throat and the large bottle shaped upper whirl chamber prevents practically any chance of clogging.

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EXPANDING MARKET FOR GASOLINE AND OIL IN GROWING AIR TRAFFIC

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N.Y.

That aeronautics has definitely entered a stage of commercial development in the United States, promising an expanding market for gasoline and lubricants as well as offering increased service in the carrying of passengers, supplies, mails, etc., in the oil country, is borne out by figures just issued by the Aeronautical Chamber of Commerce for 1926.

Last year there was more commercial flying than ever before in this country. There were 13 mail routes operating under contract with the post office department, covering 5,992 miles, flown daily on fixed schedules. The companies operating them maintained performance with unusual regularity.

One line which started flying operations April 17 maintained almost perfect service for the eight and a half months to December 31, 1926, the average of performance having been more than 99 per cent. The planes on this line flew 328,892 miles, carrying 70,540 pounds of mail and express and 258 passengers. On the 13 lines 2,086,395 miles were flown and 176,521 pounds of mail and 7,651 passengers were carried.

The government air mail lines, the transcontinental daily and the New York-Chicago overnight service, flew a total of 2,292,273 miles during the year. The average percentage of performance was 93.46.

In addition, 420 operators reported on many kinds of activities, showing that 969 airplanes flew a total of 127,608 hours, for an approximate total of 7,656,492 miles. There were 380,201 passengers carried and 182,508 pounds of express. These reports in many cases do not cover the full year.

More Than Any Country

America is now using more airplanes for civil purposes than any country in the world. This in spite of the fact that the United States lagged behind in aviation following the signing of the armistice. In foreign countries the system of government subsidies for air development has been followed and much of the civil development is actually hooked up with the military departments of the governments. In this country sentiment has been against government subsidy, as it has been generally with regard to subsidies in other commercial lines.

Among air transportation men last year is recognized as the first commercial period of the aerial age, for efforts, heretofore futile, to make a paying business of flying were more nearly realized and the aviation industry has begun to be organized on a sound financial basis.

The fact that big business, bankers, capitalists and transportation leaders are supporting the industry without direct subsidies from the Federal Government indicates how well they think of the future of aviation.

Of outstanding importance last year was the passage of legislation at Washington whereby the airways for aerial transport will be built up with government aid, as was the case of the building up of the railways for land transportation, and the new national air policy definitely defined.

It is now expected that there will be a rapid development of commercial airways and commercial service. This expansion, according to Secretary Hoover of the Department of Commerce will, within three years, put the United States far ahead of all other nations in the use of the air for transport of passengers, mail and goods.

Present State of Aviation

Where aviation stands at the present time may be summarized as follows:

United States Army airplant and trained air personnel, fliers, engineers and mechanics. A total of 102 landing fields, including the big military airports and air engineering stations at Langley Field in Virginia, McCook and Wilbur Wright Fields in Ohio, Kelly Field in Texas and important posts like Mitchell Field in New York, Bolling Field, just outside Washington, and the corresponding fields on the Pacific Coast and toward the Great Lakes. Connecting these fields are 2,670 miles of organized airways, forming a network all over the country, with army planes constantly flying over them and keeping up regular communications.

The airplant of the United States Navy, with its trained personnel and special equipment and 40 landing fields along the coast, besides the landing places for seaplanes.

The air mail service of the post office department, operating directly with its own fliers and planes the transcontinental airline between New York and San Francisco, and with some 2,000 miles of lighted airway regularly operated for night flying with mails and 66 landing fields.

The commercial routes, operated with more or less irregularity by private enterprise, including those that connect with the government air mail service and carry mails from Chicago to St. Paul, Dallas and St. Louis; from Salt Lake to Los Angeles; from Elko, Nev., to Pasco, Wash., and from Boston to New York. The total of airways more or less operated, or soon to be operated, was recently put by Mr. McCracken, Mr. Hoover's new assistant secretary for aviation, at close to 10,000 miles.

The aircraft engineering and manufacturing plants of the Ford, Curtiss, Wright, Loening and other corporations, which are constantly creating and manufacturing types of aircraft for the Government and for private use for sport and commerce. The private manufacturers, like the army and the navy, have carried on since the war and kept in close touch with foreign development and manufacture of aircraft. Such concerns also maintain landing fields and airports to the number of more than 200.

The municipal landing fields, of which more than 300 are listed and of which many near the larger cities are practical airports planned by army air officers. An example of a very fine one is the new model airport at Buffalo. In addition, more than 2,700 emergency landing fields are mapped and listed.

New Expansion Policy

Broadly speaking, what is immediately planned by the department of commerce in carrying out the new expansion policy is the lighting of the contract air mail routes so that night flying, not now practical along some of them, can be extended as rapidly as possible; the development through local agencies of airports where they are most needed; the extension of airways between airports, and cooperation with private manufacturing and aircraft operating agencies in building up air transport lines and commercial aircraft services for other purposes, such as dusting cotton fields from the air to destroy bool weevil, and for surveying, mapping, photographing and advertising.

Recent legislation has also assured an expansion of the air arms of the army and navy, with an increase in the personnel for the former and the provision of 1,800 additional aircraft in the next five years. The navy is to increase its aircraft during the same period by 1,000 planes and is to build three airships.

The immediate plans of the commerce department's air secretary call for the taking over and extension and improvement of the air mail airways. The Government's own line from New York, by way of Chicago and Salt Lake, to San Francisco, with lights for night flying from New York to Rock Springs, Wyo., has been operated by the post office department since July 1, 1924. Something over $10,000,000 has been spent upon this service, and it has been

(Continued on Page 135)

MICHIGAN FIELDS

(Continued from Page 66)

other wells over the field are on their way to the Saginaw sand, drilling at various depths. The next 30 days will give a good idea of the extent of production in the Saginaw sand. In the meantime, large companies are figuring on the possibilities of finding a still deeper pay in the Dundee sand, within the present Berea sand scope; and in case production is found in this lower stratum, it should be wells well worth the going after.

Late Completions

Four new completions are reported from the Saginaw Field proper, all being producers. The Saginaw Prospecting Co.'s No. 2 on the John Brechtelsbauer property, near North Madison Street and Shattuck Road, tapped top of Berea sand at 1,808 feet and went 20 feet in the sand and shot with 80 quarts, estimated at 220 bbls. initial production.

Atlas Oil Co.'s No. 2 Palmer property, at Davenport Street and the Michigan Central Railroad, struck top of Berea at 1,808 feet, drilled 20 feet in and given a shot, is showing for 20 bbls.

Fordney Petroleum Co.'s No. 1 George Bear property at 180 Pleasant Street, tapped the Berea at 1,815 feet and drilled 18½ feet in the sand, and after shot indicates a 15-bbl. initial producer.

West Virginia Oil & Gas Co.'s No. 1 on the Bennett-Fisher property, on Madison near Cronk Street, is reported showing for 25 bbls. or so initial. Berea was struck at 1,804 feet and drilled 19 feet in the sand and given a 40-quart shot.

Wildcats

For some weeks, leasers have been active in the vicinity of Owosso, Shiawassee County, about 40 miles south and a little west of Saginaw, and a number of test wells are talked of. The Sun Oil Co. is reported to have a drilling machine on the way to a location on a block of acreage in the country.

Near Trenton, in Wayne County, approximately 20 miles south of Detroit and between Detroit and Monroe, a test well is under way. This well appears to be admirably located for a producer, being on a line with the structure that passes through Petersburg, Monroe County, from the old Trenton Rock Field of northwestern Ohio, into Ontario, Canada.

A test is drilling near Grayling, in Crawford County, far to the northwest of Saginaw, in the north central portion of Michigan; also a test under way near Tawas City, in Iosco County, north of Saginaw Bay. The supposition is that productive pools will be found along the eastern part of Michigan along the west shore of Lake Huron. Roscommon County, where the marl beds are, appears to attract more or less attention of the leasers, and it would not be surprising to see some test work there during the summer season. In the western portion of the State, oil showings have been found in wells that were drilled below the salt veins along Lake Michigan.

Field Pickups

A string of 1,978 feet of casing has been set in the Saginaw Prospecting Co.'s well on the George Griebel property on the Shattuck Road, west of the Hermansau Road, which was a small producer but going down for the deeper Saginaw sand.

The Sun Oil Co.'s Saginaw sand well on the Ferdinand Stelzreide farm, north of Saginaw, is reported doing 40 bbls. a day at the close of the week.

Elliott & Miner are starting a well on a community lease in the block bounded by Stark, Stone, Cronk, and Davenport Streets.

Myron E. Lee is starting No. 3 on the Brechtelsbauer lease on the Michigan and Shattuck Roads. Bourdow Brothers are drilling No. 1 on the Mrs. Julia Gelnes property on North Michigan Avenue, south of Davenport Street.

Fordney Petroleum Co. is drilling No. 1 on a lease south of Davenport Street, near the Pere Marquette right of way, in what is known as the Dump. Same company is working at No. 1 on the southeast corner of the Hermansau Road and Madison Street.

Sun Oil Co.'s rig for No. 7 John Schoenteit farm, Section 11, Saginaw Township, was destroyed by fire of unknown origin.

Superior Oil Co. has started drilling No. 1 on the John King property on the south side of Weiss Street, a short distance east of Eddy Street.

A rig is building for a deep test to the Saginaw sand on the E. E. Householder 300 acres, north of the Shattuck Road, owned by the Saginaw City Building Co. This well will be drilled by Lemunyon Brothers, old-time contractors of the Lima Field, for Frank H. Heginbottom, trustee. A well was started on this lease by other interests several months ago, but never was completed.

The B. & B. Petroleum Co. shot its well on the Pat Sauve farm, about a mile northwest of Birch Run, a dozen miles south of Saginaw. The well has been announced as a dry hole a week or so ago, but now representatives of the company declare they believe it can be made a well. The top of the Berea was found at 1,534 feet and drilled 14 feet in the sand and shot with 60 quarts.

The Universal Oil Co. of Detroit has contracted with Charles P. Brandt for the drilling of three wildcat wells near the town of Mt. Morris, in Genesee County, a short distance north of Flint, between Flint and Saginaw.

EXPANDING MARKET FOR GASOLINE AND OIL

(Continued from Page 132)

markedly successful in getting the mail through on time with a minimum of accidents.

On the other routes not operated by the post office department air transport concerns as contractors carry the mail. These contractors can and do transport passengers and freight as well. All these private lines run more or less regularly and some of them are getting a very considerable passenger business.

There seems to be little doubt that the next five years will see commercial flying well established, with possibilities of a marked era of expansion, placing it among the most important of the world's transportation agencies and certainly as the most important with relation to future expansion.

COMPETITION IN AUSTRALIA

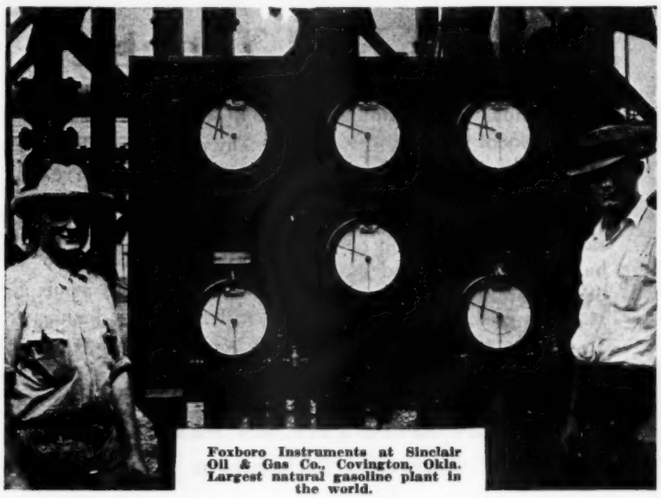
The importance of Austrlia as a market for petroleum from the United States can be seen when it is realized that in the fiscal year 1924-25 imports from America of kerosene and other refined petroleum burning oils totaled 17,058,370 gallons; petroleum and shale spirit, including benzine, benzoline, gasoline, pentane, and naphtha imported from the United States came to 47,244,503 gallons. America has held the bulk of the trade in these lines. Recently a new factor has begun to make itself felt in the market, the Commonwealth Oil Refineries Co. (Ltd.) jointly controlled by the commonwealth government and the Anglo-Persian Oil Co. (Ltd.)

NEW RUMANIAN REFINERY

The newly completed refinery on the Moinesti property of the Steaua Romana was recently put into operation. The plant was erected to deviate the piping of crude oil to the company's Campina refinery. It is equipped with distillation apparatus on the Borrmann (Essen) system. The refinery places Steaua Romana in a favorable position for deliveries of products to the Moldavia, Bessarabia and Bukowina districts, principally by saving of transport charges.

JAPAN CUTS AUTO TAX

There has been a reduction of taxes on automobiles sold in Japan averaging approximately 2.5 per cent on private cars with a maximum reduction of 6.6 per cent on commercial cars.



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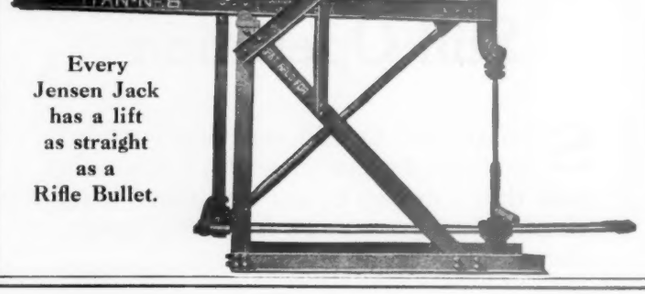

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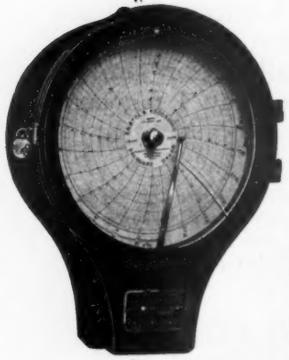

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GOVERNMENT OFFICIAL REVIEWS OPERATIONS IN CENTRAL ALBERTA

By William Ca'der*
Federal Petroleum and Natural Gas Inspector for Western Canada.

Undoubtedly there are many who may question my classing Wainwright as an oil area, but Wainwright is an oil area, partially proven, and well on the way to be classed as a proven area. Oil has been met in every well which has been drilled to the first sand to date. That all these wells are not producers is not due to lack of oil, but solely to the drilling methods which have been used up to the present.

Before saying more about Wainwright, I think it advisable to give you a few details respecting the equipment and method of drilling which are essential for successful oil and gas prospecting. Prospect wells are usually at a distance from supply and shop centers. Therefort, it is of primary importance that all equipment—plant, tools, casing, etc. —should be of the best, and if not new, in such condition as to ensure continuous work once the drilling is started. I know of no other cause which demoralizes drilling crews and causes trouble with casing more than petty stoppages awaiting some small piece of equipment or providing a makeshift. Such stoppages usually mean that someone is idle and idleness grows until it begets carelessness; then there are accidents which in many cases mean the final abandonment of the well before results are known.

No prospect well shoukl be drilled in this area with a great head of water except where it is necessary to fight a sand stratum or gas blowout. At all other times there should only be sufficient water in the well to permit the free working of the tools. It will, therefore, be readily understood that only dry percussive tools should be used.

Indications of Oil

By using such a system the smallest indication of water will be noted, also even minute indications of oil and gas —all of which should be tested. Some people pass by small indications of oil, but I have never done so, as early in my oil field training I realized that a prospect well might be located some distance away from an oil pool, and that the oil having to pass through compact strata might lose a great deal of the pool pressure and would readily be forced back into the strata if opposed by a high head of liquid standing in the well. It was by compelling assistants and drillers to adhere to this rule that I have been successful with discovery wells in new territory and in extending the boundaries of proven oil pools.

There are many good people going about saying this north country is no good as a potential oil producer, giving as their reason that the oil is accompanied by water. I have been most emphatic in contradicting this statement, as I have not yet, in my experience of several new oil fields, met an oil with water, neither have I read of one instance of such an occurrence in other fields, except once where the initial wells were drilled near the base of the structure. Of course, there is always the possibility of a water horizon being close to the oil stratum and that the water may be carried down to the oil through bad water shut-off precautions, but in the Wainwright area the closeness of a water horizon to the oil I will not believe until several new wells have been drilled in a proper manner with all waters isolated so that they cannot penetrate the oil sands.

Logs Examined

I have had the opportunity to make a very careful examination of the logs of all the wells drilled to date east of your city, and I must tell you that after perusing these logs I came to the conclusion that the drilling practice adopted was one that might be expected in a well-developed oil field where conditions were thoroughly understood so as to permit of the economical use of well pipe and other essential details.

Wainwright has not yet reached the developed stage and until it does such economies can only be classed as dangerous. Economy in well pipe and drilling footage records can all be worked for in future wells, when you know the exact depths you will have to drill to.

As regards the production on test of British Petroleums No. 3-B, many may think this showed up bad, but I was greatly surprised at the results, as I anticipated a much lower figure. This opinion was based on the fact that the well had not been recently cleaned out, also that a perforated liner had been inserted immediately the oil sand was reached and without any attempt being made to get the sands working so the oil would have a free inflow. In all the other wells completed to date similar lines were inserted immediately the sand was penetrated. This is fortunate, as I am certain that had the sands been enticed to work caving would also have resulted, and this, on account of the water shut-offs being all made too late, would have resulted in the water breaking through and flooding the oil horizon, with the certainty that today, instead of oil, there would now be nothing but water in 3-B and the adjoining producing well.

If you will calculate what a small output of three odd barrels per hour per well represents you will soon appreciate why I am so sanguine about this field. At a recent visit I witnessed a small but continuous outburst of oil and gas which definitely convinced me that if this well and the others had been properly completed, Wainwright might also have caused a sensation in world oil circles. With this last and practical evidence, I am now convinced that somewhere nearby to the present producing wells, good production will be found; which will, for all time, dissipate the croakings of pessimists.

It may appear optimistic, but I cannot refrain from telling you that you have in this north country potential oil fields extending from Fabyan to the Saskatchewan border and perhaps beyond. It would be absurd to expect one continuous pool all along this area, but there will be found more than one pool—some large and some small. The evidences are here for all who care to study them.

Surface Outcrops

Surface outcrops of strata are few and far between, and it may take time to discover these pools, but if wells are properly triangulated good results will be the reward. At the moment it is essential that the Wainwright area be properly developed, and when this is done, discovery and development of the other areas will quickly follow. No deep test has yet been made, and until several such tests are made no one can say what may be developed at greater depths; but success will be only to those who introduce competent personnel and get away from slipshod methods.

I wish to give you an idea of the work done all over the West in the search for oil and gas. It will come as a surprise to you that close to 400 wildcat wells have been started during the past 20 to 30 years, but despite the fact that many of these showed oil none was ever brought in as a commercial producer, and the only wells completed were those where gas was met at several points in the province. Leaving the Turner Valley out of consideration, what has been accomplished elsewhere?

Some would say, northing of any tangible value; but I personally consider these wells have been of value in showing small indications which will one day entice others to further prospecting and undoubtedly open up new areas.

This country has sent out in the past competent oil field workers to all parts of the world to whom must be given

*Before annual meeting Central Alberta Oil & Gas Association of Edmonton, Alberta.

the credit of opening up many of the biggest and most productive oil fields in the eastern hemisphere. In all cases they have had experienced supervisors to direct them, men trained either in eastern Canada, the United States, Galicia or Russia, and who knew their jobs thoroughly. Surely you are not above employing and taking into your confidence competent oil field supervisors? The novice has already done untold harm to legitimate development of oil and gas out here as he has done in other new fields, and it will take time to get a return of faith in the oil potentialities of this great western country. Are you going to let this continue and see your money frittered away in useless work?

KENTUCKY-TENNESSEE

(Continued from Page 131)

will be shipped to the property and well No. 3 will start drilling immediately. There are now two other wells under way near the Hawkins farm wells; one by the White Plains Oil & Gas Co. on the Smith Carver lease and the other by the Ohio Oil Co.; on the Johnson farm, on the west side of the river. A number of leases have changed hands at fancy figures and it is understood several wells will be started on adjoining farms.

Well No. 2 on the Jim Arms farm in Peterman Bend, 1 mile east of Celina, struck the lower pay late Friday and flowed over the mast and is rated as one of the largest ever drilled in that pool, where there are now a large number of producing wells. The lease is owned by Moorman & Herndon, of Cleveland, Ohio, who are preparing to drill a number of wells on their property. The big well has created quite a stir among oil operators and as a result Parks and Wolf, of Tulsa, Okla., let a contract for drilling three wells on another portion of the Arms farm. They are old-time operators and will conduct operations on a large scale.

The third big well of the week is that of H. H. Harwood in his No. 1 on what is known as Tract No. 2 of the famous Barlow Langford farm in the McClurkin Pool, on Mill Creek, 4 miles south of Celina, in Clay County. The oil was drilled into at about 425 feet and the fluid rose rapidly to the top of the hole and an oil saver was put on to prevent the oil flowing over the casing while the drilling was being completed. This new well offsets the big well recently brought in by the Cumberland Valley Oil Co. of Hopkinsville, Ky., on another portion of the Barlow Langford farm and is but a few hundred feet from the gusher of the Ohio Oil Co., on the Lem Cunningham farm. Mr. Harwood is an experienced operator from West Virginia and has several leases in Clay County which he will develop.

The Ohio Oil Co.'s first completion in the Clay County Field, being No. 2 on the Lem Cunningham farm, is reported equally as good as the big well on the Hawkins farm.

Local parties of Livingston have started a well on the Thomas F. Daily farm in the heart of the Mill Creek Pool, a short distance from the Langford and Cunningham wells. The well is being drilled on what oil men term a "top lease" which means the lease is disputed by a former leaseholder. The original lease was taken by the McClurkin interests last summer who claim the quarterly rental was paid by depositing the check in the mails but Daily claims the check did not reach him and therefore executed another lease to the Livingston parties who are claiming the right of possession under the new lease.

John H. McClurkin, the pioneer Clay County operator and discoverer of the Mill Creek Pool, deposited a check for $2,000 Monday with the County Judge of Clay County to validate his lease on the County Poor Farm, which is close to his original discovery well on the Barlow Langford farm. Mr. McClurkin is moving a rig to the farm and will start spudding as soon as possible. His wildcat well on the Dr. W. W. Tucker farm, on Long Fork in Macon County, 6 miles east of Lafayette, encountered several gas pockets but is now drilling without interference at around 250 feet. W. S. M. Hughes, of Indianapolis, Ind., is drilling below 100 feet on the J. C. Long farm on Bullard Creek, in Jackson County, about 5 miles west of Gainesboro.

In the Petermen Bend area, J. L. Miller and others of Holliday's Cove, W. Va., drilled in their No. 2 on the Sam Keisling lease 3 miles east of Celina, at the depth of 490 feet, or about 100 feet below the Pencil Cave formation. It is estimated as good for 20 bbls. initial.

EASTERN FIELDS

(Continued from Page 66)

S Rutan farm, is holding up at 55 bbls. a day.

In Perry Township, Greene County, the Carnegie Natural Gas Co. has completed a test on the C. C. Long farm and it is a duster. It has been abandoned at a depth of 3,107 feet. In Whitely Township, Greene County, the Philadelphia Gas Co.'s test, on the J. Morris farm, is a fair gasser at a total depth of 3,213 feet.

Drilling Deeper

As anticipated, the Morse Oil & Gas Co.'s well, on the Vunock Behr farm in Patton Township, Allegheny County, which drilled into the sixth sand a few weeks ago and made a good showing, has declined to a point where it is not a profitable producer and is drilling to the lower sand. In the same township, the same company is drilling a test on the Mort Miller farm. L. O. McKinney and others have a rig up on the Mrs. Smith farm.

In Perry Township, Greene County, the Moore-Tex Oil Co.'s test, on the John Lemley farm, is a gasser in the Big Injun sand. In the same township, the Dunn Mar Oil & Gas Co. is drilling No. 3 on the Endsley Lemley farm. In Perry Township, the Carnegie Gas Co. has a rig up on the William Fox farm, and is drilling a test on the A. H. Johns farm.

In Morris Township, Billingsby & Co. have a gasser in the Gordon sand at a test on the Ruth Bain farm. In Gilmore district, John Swisher & Co. have a gasser in the same formation at a test on the Anna V. Lantz farm. This was an old well drilled down.

In Perry Township, the Peoples Natural Gas Co. has drilled its test on the T Fox farm deeper and increased its daily gas output from 7,000,000 to 15,000,000 feet. In Morris Township, the Consumers Fuel Co.'s No. 4, on the James S. Rutan farm, is holding up at 55 bbls. a day.

POSITION OF BIG LIME IN WEST TEXAS SHOWN

(Continued from Page 59)

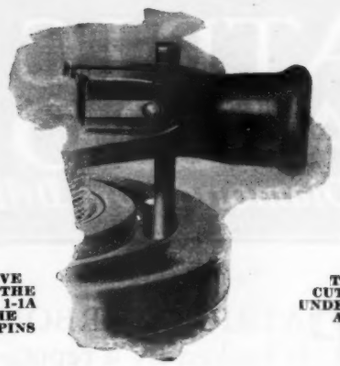
itely within the Double Mountain formation.

Top of Big Lime in Basin

In the basin no limestone formations are found above the top of the Big Lime. It is overlain by red beds, anhydrite, and salt.

Salt has not been encountered below the top of the Big Lime in any of the wells drilled thus far.

The appearance of thick formations of salt and anhydrite in the stratigraphic column indicates that the conditions of deposition had undergone a decided change. The anhydrite and salt must have been laid down in a closed, semi-closed, or restricted basin. It seems logical to assume that the contact between the Big Lime series and the overlying anhydrite and salt series marks the time of the restriction of the Permian sea. This assumption will be used later in discussing the probable stratigraphic position of the Big Lime on the west side of the basin. Its importance is substantiated by the fact that at the end of the deposition of the Big Lime, certain deformative movements took place, which



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affected the lime, but not the overlying beds.

It is not everywhere an easy task to pick the contact between the two series. In places the break is distinct. Elsewhere there is a transition zone present, through which the anhydrite grades imperceptibly into dolomitic limestone. In places, small amounts of anhydrite are found below the top of the lime. In the basin proper, the top of the lime cannot be determined from drillers' logs. Most drillers log anhydrite as lime. This means that the contact between the two series must be obtained from an examination of the samples taken from the wells.

Where it is difficult to place the contact, adjacent beds may be used as checks. There are the brown dolomite, the white lime, the bentonite horizons, the sulphur water zone, and others. In practically all cases the lime is overlain, first by anhydrite, and then by salt.

It is thus seen that the change in depositional conditions in the basin was somewhat gradual rather than sudden.

West Texas and Panhandle

The conditions of lithology and deposition represented in the eastern part of the cross section are somewhat similar to the conditions south of the Panhandle.

The Big Lime of the Panhandle appears to be Wichita. A short distance to the south, the first lime encountered by the drill is Clear Fork. From Dickens County south and west, and including that county, the uppermost is the Big Lime of West Texas.

It might be of interest to mention that in the Panhandle District the Blaine gypsum formation caps the salt series, although in West Texas, part of the salt series overlies the Blaine gypsum.

West Side of Basin

On the west side in the vicinity of the Delaware Mountains, the Permian has been divided into the following formations, Delaware, Castile, Rustler, and Capitan.

The Delaware formation is a dark carbonaceous sandy limestone ranging from 2,000 to 4,000 feet thick. It is marine.

The Castile formation is composed of 2,000 or more feet of anhydrite and gypsum resting apparently comfortably upon the Delaware formation, the contact being a 30-foot bed of brown sandstone.

The Rustler formation is a thin dolomitic limestone bed about 20 feet thick, occurring at the top of the Castile.

The Capitan formation consists of 2,000 feet or more of dolomitic limestone, which also appears to lie conformably upon the Delaware formation. It outcrops in the mountains west of the area underlain by the Castile gypsum, and has been connected with the Castile by most of the petroleum geologists who have studied the Trans-Pecos area.

In New Mexico, in the Artesia field, the stratigraphic section of the Permian as shown by cuttings from the wells drilled in the field, is as follows: approximately 2,000 feet of gypsum and anhydrite containing red clastic material and some dolomitic limestone, below which the section is light and dark sandy dolomitic limestone. South of the Artesia Field, in the Guadalupe Mountains, the Permian stratigraphic column has been subdivided into the Delaware, the Capitan, and the Carlsbad limestone.

On the southwest side of the basin, in the Glass Mountains the following subdivisions have been made, from bottom to top: Wolfcamp, Hess, Leonard, Word, Vidrio, Gilliam, and Tessey. These formations consist for the most part of dolomitic limestone, containing sandstone and shale. The formations are fossiliferous and appear to be marine deposits throughout. They have a total thickness of about 7,000 feet.

Correlation of Big Lime

On paleontological evidence the Word formation of the Glass Mountains section has been correlated with the Delaware formation of the Trans-Pecos region[1]. Both are considered to be of Double Mountain age. Lithologically, they are somewhat similar. The Word formation is overlain by the Vidrio, which very closely resembles the Capitan of the Trans-Pecos region. They probably are to be correlated.

The correlation of southeastern New Mexico with the Trans-Pecos area and the Glass Mountains is still a moot question. Inasmuch as it may eventually furnish the key to the problem of the correlation of the Big Lime of the basin with the section on the west side, it is relevant to this paper.

In this paper it will be impossible to discuss all of the ideas which are being advanced, regarding the correlation of the Permian strata on the west side of the basin. Some of the conflicting views and the various arguments given in support of them, may be summarized as follows:

1. The Big Lime, the Delaware, the Word and the Artesia "Pay" correlate.

(a) All of these formations are of Double Mountain age. This correlation is based on fossil evidence and subsurface correlation.

(b) An extension of the strike of the contours of the Delaware formation from Texas into the Artesia Field causes them to coincide with the contours on the pay zone of the latter. If the two do not correlate, a fold or fault of considerable magnitude would be necessary, in order to explain the discrepancy.

(c) These formations are similar lithologically, containing beds of bentonite, near the top, and beds of dark sandy limestone. Such differences in lithology as are present, may be explained by changes of facies. The correlation of the Delaware and the Word appears to be acceptable to all; although the difference in lithology between these two is about as great as between the Delaware and the Big Lime.

(d) Within the basin, the contact between the lime series and the overlying salt and anhydrite series should be used as a time equivalent, because of the genetic significance of the two types of deposits.

2. The Big Lime and the Artesia Pay are above the Delaware and Word formations. They correlate with the Capitan formation, and with part of the anhydrite and salt series.

(a) West Texas may not have been one salt basin, but two or more during the Permian, and the Big Lime of one locality may correlate with the salt and gypsum of another.

(b) The most concentrated salt solutions may have settled into the deeper parts of the Permian basin, precipitating salt and anhydrite, while dolomitic lime was being deposited contemporaneously in the shallower portions of the sea.

(c) Salt and anhydrite may have been precipitated in the shallowest parts of the Permian sea, where evaporation may have been greatest, while dolomitic lime was being deposited contemporaneously in the deeper portions, subsidence keeping pace with deposition.

(d) Samples taken from drilling wells indicate that the Big Lime of West Texas and of New Mexico bears a closer resemblance to the Capitan than to the Delaware formation.

3. The Big Lime of West Texas and of New Mexico correlate with the Capitan, being above the Delaware formation and below the Castile gypsum.

(a) The Castile lies unconformably upon the Delaware.

(b) The Castile lies unconformably upon the Capitan.

(c) Samples from the wells show that the Big Lime resembles the Capitan and not the Delaware.

(d) Where the Castile gypsum directly overlies the Delaware formation, the Big Lime series has been removed by erosion.

Conclusion

These are only some of the current opinions, which are in active circulation, concerning the correlation of the Big Lime series with the type sections on the west side of the basin. The writer at the present time favors the first hypothesis, but realizes that more information is needed before a final correlation can

[1] J. A. Udden, "Notes on the Geology of the Glass Mountains," University of Texas Bulletin, No. 1753, 1920, p. 56.

be made. As in all current discussions about West Texas, the conclusions is, that more drilling must be done before a final correlation of the west side of the basin can be made.

FARMINGTON, N. MEX.

(Continued from Page 48)

1,960 feet; Ringle's No. 1 permit well, C SE, Section 26-27-11, down 325 feet; Continental Oil Co.'s No. 11 Table Mesa, Section 3-27-17, drilling at 1,455 feet; San Juan Petroleum Corp.'s No. 1 Palmer, NE NE, Section 17-29-13, water trouble at 1,073 feet; San Juan Leaseholds' No. 2 Bowman, C NE Section 30-30-15, 10-inch standing cemented at 915 feet; R. M. Smith's No. 2 James, NW NW, Section 23-29-11, ready to spud; Aztec Petroleum Co.'s No. 1 McCoy, NE SE, Section 9-30-11, operations suspended at 1,200 feet; T. C. N. Oil Co.'s No. 1 Lanier, NE NE SW, Section 9-29-11, ready to spud; Coon, Hennis Syndicate's No. 1 Haren, NW SW, Section 22-30-9, erecting standard rig; A. M. Edwards, trustee, No. 1 Jackson, NE NE, Section 21-29-11, down 740 feet, swabbing 4 bbls.; W. R. Childers Oil Co.'s No. 1 Ute, Section 24-31-15, capped at 2,130 fee as gas well; Continental Oil Co.'s No. 23 Rattlesnake, Section 12-29-19, shut down; Continental Oil Co 's No. 17 Rattlesnake, Section 2-29-19, sidetracking casing at 3,785 feet; Continental Oil Co.'s No. 20 Rattlesnake, Section 3-29-19, completed in Dakota at 862 feet; Union Oil & Mining Co.'s No. 2 Pine, C SE SW, Section 8-29-9, fishing at 2,950 feet; Continental Oil Co.'s No. 8-A Table Mesa, Section 3-27-17, completed as producer in Dakota at 1,420 feet.

ARTESIA, NEW MEXICO

(Continued from Page 44)

The Inglefield, Bridges No. 1 in Section 4-17-34 is reported to have drilled through five feet of green shale below 4,800 feet, carrying additional oil.

Unable to move material to its original location has caused the Arena Oil Co. to pick a new spot for its No. 1 test, this being in the NW of Section 18-13-31, Chaves County.

The Danciger Oil & Refining Co. has also moved its location on the McClay permit from Section 22 to the SE SW, Section 24-17-27. Drilling on this well will start within the next 10 days.

DRILLING REPORT

Eddy County

Grimm & Clark's No. 1 Daugherty, NE SW, Section 3-17-27, is making 1,000,000 feet of gas at 950 feet; Compton's No. 3 Mann permit, SE, Section 3-18-27, shut down at 400 feet; Compton's No. 2 State, NW, Section 2-18-27, shut down at 1,575 feet; Danciger Oil & Refining Co.'s No. 1, SE SW, Section 24-17-27, moving rig to location; Empire Gas & Fuel Co.'s No. 1-B Russell, SE NE, Section 34-17-27, drilling at 1,725 feet; Henderson, Dexter & Blair, Inc.'s No. 1, State, NW NW, Section 9-19-28, drilling below 2,525 feet; Kelly's No. 1 Berry permit, NW NW, Section 27-17-27, shut down to install heavier rig; Lackawanna Oil & Refining Co.'s No. 1, NE SE, Section 17-16-27, shut down at 2,000 feet awaiting new contract; Lackawanna Oil & Refining Co.'s No. 7, C NW SE, Section 21-18-28, shut down on top oil sand at 2,142 feet; Marland Oil Co.'s No. 1 Hale, Section 11-20-30, drilling at 1,700 feet; Manhattan Oil Co.'s No. 1 Cronin, SE NE, Section 1-18-27, drilling at 2,750 feet; Midwest Refining Co.'s No. 1 Terry, SW cor. NW, Section 15-18-26, shut down to install cable tools; Ohio Oil Co.'s No. 1 Marland, SW SW, Section 13-22-29, drilling at 3,095 feet; Prairie Oil & Gas Co.'s No. 1 Keel, SE SE, Section 10-17-31, pumping 15 bbls. daily; Picher Oil & Gas Co.'s No. 4, NW cor. SE SE, Section 12-18-27, location; W. A. Stone Oil Co.'s No. 1 Hnulik, SW cor. NW NW, Section 25-17-26, drilling below 1,200 feet; Superior Oil Co.'s No. 1, SW NW, Section 33-23-28, rigging up; Skelly Oil Co.'s No. 1 Lynch, Section 22-17-31, drilling in; Texas Production Co.'s No. 1 Robinson, NE SW, Section 25-16-31, drilling below 625 feet; Woolley & Jones' No. 1 McIntyre, C SE, Section 21-17-30, fishing for casing.

Chaves County

Arena Oil Co.'s No. 1, NE, Section 18-13-31, rigging up; Buffalo, Roswell No. 1, Section 24-11-27, drilling below 4,040 feet; Gibson Oil Corp.'s No. 1 Forsyth, C NE, Section 8-11-23, reported preparing to resume drilling, depth of well 625 feet; The Texas Company's No. 1 Dunken Dome, SW, Section 29-17-18, drilling past bailer at 3,370.

Lea County

Cap Rock Oil & Gas Corp.'s No. 1 Leonard & Levers, SE, Section 11-16-32 drilling at 2,250 feet; Covert's No. 1 NE NE, Section 15-21-33, shut down in the salt at 3,000 feet; the Exploration Co.'s No. 1 NE, Section 25-19-35, fishing for two strings of tools at 865 feet; Henderson, Dexter & Blair, Inc.'s No. 1 Wyatt, SW SW, Section 34-17-33, drilling at 4,825 feet, making 1,000,000 feet of gas; Holmes & Huey's No. 1, Section 18-12-35, temporarily shut down at 2,200 feet; Inglefield & Bridges' No. 1, Section 4-17-34, drilling at 4,815 feet; A. D. Morton's No. 1, SW SW, Section 28-11-38, location; Ohio Oil Co.'s No. 1 William Mitchell, NE cor. SW, Section 18-17-32, being plugged; Texas Production Co.'s No. 1 Jackson, SE cor., Section 4-20-34, ready to spud.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended April 16 totaled 1,211,000 bbls., a daily average of 173,000 bbls., compared with 1,240,000 bbls., a daily average of 177,143 bbls., for the week ended April 9, and a daily average of 168,036 bbls. for the four weeks ended April 16.

At Atlantic Coast Ports—	
Baltimore	366,000
Boston	65,000
New York	191,000
Philadelphia	133,000
Others	333,000
Total	1,088,000
Daily average	155,429
At Gulf Coast Ports—	
Galveston district	58,000
New Orleans and Baton Rouge	65,000
Port Arthur and Sabine district	.....
Tampa	.....
Total	123,000
Daily average	17,571
At All United States Ports—	
Total	1,211,000
Daily average	173,000
Daily average four weeks ended	168,036

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended April 16 totaled 479,000 bbls., a daily average of 68,429 bbls., against 303,000 bbls., a daily average of 43,286 bbls., for the week ended April 9, and a daily average of 71,643 bbls. for the four weeks ended April 16.

At Atlantic Coast Ports—	
Baltimore	.....
Boston	.....
New York	257,000
Philadelphia	222,000
Others	.....
Total	479,000
Daily average	68,429
At Gulf Coast Ports—None.	
Total Atlantic and Gulf Coast ports	479,000
Daily average	68,429
Daily average four weeks ended	71,643
Distribution of total California oil receipts is as follows:	
Crude	114,000
Gasoline	74,000
Gas oil	73,000
Fuel oil	160,000
Lubricating	58,000
Total	479,000

JAPAN'S OIL PRODUCTION

Japan's oil production, always small, has received an appreciable increase through the discovery of an oil field in Formosa. The Japan Oil Co. has brought in three wells with a combined daily output of more than 1,700 bbls., more than 600,000 bbls. a year. The production for the entire nation in 1926 was but 1,657,000 bbls. One of the wells also is producing 2,000,000 feet of natural gas daily. The government, anxious to develop fuel resources within the Empire, has offered subsidies for the drilling of test wells in all parts of Japan.

BURT

Metal-Top Ventilator

Is no experiment, as it has been on the market for years; and is in use by some of the largest manufacturing concerns in the country.

The Burt is manufactured to any size required. All sizes built throughout of galvanized steel strongly braced with galvanized steel bands of heavy weight, to withstand any strain to which it is liable to be subjected.

All metal top ventilators are furnished with a sliding-sleeve damper—a great improvement over the flat damper. This damper leaves the air shaft open, consequently the "pulling power" is greater and for this reason a smaller number of Burt Ventilators than of any other maker is necessary to ventilate any building.

The Burt Manufacturing Company
Pioneer Oil Filter Manufacturers
929 S. High Street, Akron, Ohio

The World's Most Durable Valve Cup

Wear Better **Last Longer**
Uniform Size **Best Quality**

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A FIVE-LINE Classified Ad (30 words) can be inserted in The Oil and Gas Journal four times for $5.50—a small cost to acquaint 25,000 readers with your product or service.

EMCO

BALANCED VALVE REGULATORS

Once an EMCO Regulator is installed in the line it is there for good. The REMOVABLE Valve Box of the EMCO High Pressure Regulator makes it unnecessary to tear the Regulator out of the line to make repairs, and the Valve Box size can be changed to take care of increased or decreased consumption.

A spare Valve mechanism on hand assures uninterrupted service, saves time, money and labor.

PITTSBURGH EQUITABLE METER CO.

PITTSBURGH, PENNA.

CALIFORNIA FIELDS

(Continued from Page 58)

on should become more frequent and this, of course, should be reflected in the daily production of this district. The California Petroleum cemented four wells just above the pay a few days ago and this company expects to utilize its recently constructed pipe line and rather elaborate field storage in the very near future. This company, simultaneous with the spudding in of its 12 drilling wells, immediately started construction work on 10 individual well tanks and 4 pipe line containers in order to facilitate the movement of production. As a result of this the company has the most compact gathering system in the town lot area. The California Eastern is not making as rapid progress as might be expected, although the company has several drilling projects under way with rigs standing for five or six more. In all new fields the first few operators to reach the pay participate in whatever flush production is available and for this reason the delay of the California Eastern in getting under way may prove a costly one unless the sand in the extension affords a deeper penetration and holds up better than some anticipate This company co-operated splendidly, however, in the attempt to regulate drilling and for this reason it is hoped it will secure its just share of whatever production is available.

The General Petroleum has two wells nearing production on the Wassom property and will probably complete three or four more within 30 days if this entire lease is productive. George F. Getty has just picked up the top of the pay in his No. 2 Alamitos at 4,656 feet and a string of 8¾-inch is now being run in. Getty also has several other wells nearing the projected depth, but as far as can be ascertained, no connection with any of the major pipe line companies has yet been made. It is understood that Getty, Sr., has leased some empty storage and will follow the plan of his son, Paul, who pressed a train of tank wagons and trailers into service some time ago to transport production from this section to leased storage several miles away. Paul Getty, by the way, has three more producers nearing completion on the Cleaver property and they should be turned loose some time during the current week, as the 8¾-inch was landed and cemented a few days ago.

Huntington Beach

Three new wells and one recompletion were officially finished in the Huntington Beach Field, but it was a rather 50-50 proposition as two of this quartet resulted in large production, while the other two were small pumpers. The best well completed was the Olympic Refining Co.'s No. 10 Matthews & Burman, which registered an initial output of 1,275 bbls. of clean 23.1 gravity oil daily. The output from this well, which was drilled to 4,481 feet and finished with a 6¼-inch oil string carrying 390 feet of 80-mesh screen, is flowing through a 42/64-inch bean under a pressure of 850 pounds. The Crudoil Co.'s No. 2 Huntington, a recompletion after being redrilled and deepened from 3,589 feet to 4,392 feet, started off flowing 1,175 bbls of clean 22.9 gravity oil daily, and instead of declining, as is usually the case, this well has consistently maintained its initial flow since completion. The two small wells finished during the week were Miller & Thompson's No. 1 Huntington and the Ambassador's No. 10. The former is pumping 225 bbls. daily from 3,839 feet while the latter is making 125 bbls. from 4,350 feet. Both are making considerable water and may require some corrective measures. E. J. Miley discontinued drilling on his deep test, No. 5 Pacific Electric, at 5,151 feet, and the hole will be plugged back for upper production. The output of the San Martinez Oil Co. at Ninth and Ocean Avenue, is nearing the 5,200-foot level and, since nothing of importance has been logged since passing 3,150 feet, the outlook for deep production is not any too favorable. Drilling work in the Huntington Beach town lot area has slowed up very appreciably during the past two weeks, due probably to decreased revenues resulting from the rather severe cut in crude oil prices and, while additional new wells can be anticipated from time to time, completions will be more irregular in the future. The Standard, due to its large holdings and the scope of present work, should finish the largest number of new wells in the future, some of which will undoubtedly register a substantial initial production.

Long Beach

The Long Beach Field, due to the completion of several large deep flowing wells, has been holding up exceptionally well during the past few months. In fact, the daily production has been slowly climbing and the average production for March was in excess of the daily output during February There are several drilling projects in the field which have for their objective the deep sand encountered below the 4,500-foot level and their completion will undoubtedly result in the stabilization of the daily field production. Some are inclined to believe that Long Beach is in for an appreciable decline between now and the close of the year, but this opinion hardly seems justified in view of the deep drilling now under way. One would probably be safe in betting that the daily production of the Long Beach Field at the close of 1927 will not be 10,000 bbls. under the present output, unless, of course, production is shut in because of inability to handle or market at a profit. The Shell recently started five new drillers on its Cres on lease and the completion of this quintet during the coming summer should more than offset any decline which might take place in the meantime. The Union should finish two wells in this district in the near future and the spudding in of Long Beach Community No. 15 a few days ago should at least maintain the company's lease production. The California Eastern is running four strings of tools in this area, while the Delaney Petroleum, A. T. Jergins and General Petroleum are working on one driller each. The Miley Mills organization got a wet job in No. 6 at 3,061 feet and this well, which is scheduled to be finished around the 3,100 foot level, is being temporarily delayed.

The waste disposal system of the Oil Producers, Inc., was placed in commission a week or two ago following several preliminary runs and this installation, which covers 15 acres along the flood control channel, is working out in good shape. The operating concern is a duly incorporated company, the stock of which is held by a large number of Long Beach producers. The object of the company, which was organized for mutual protection and benefit, is to provide a means of disposing of waste matter which has heretofore caused considerable trouble and ill feeling on the part of Long Beach residents because of large accumulations and improper drainage of oil polluted water into the ocean, which naturally washed back along the bathing beaches. The total cost of the dehydrating plant, sumps, dikes, drainage canals and concrete pipe installations was approximately $100,000 and, while it was the original intention of having all operators participate equally in the cost and share in any revenue derived from oil recovery, many producers refused to become affiliated due to other methods of elimination. Some have failed to join the organization due to the cost involved, which approximates $75 per rig, but their failure to do so may result in the imposing of heavy fines by the city government or State Game Commission if waste matter is permitted to become a nuisance.

Richfield

The Union finished one new well and a recompletion in the Richfield district, the latter being No 3 Stern, redrilled and deepened to 4,665 feet, from which depth it is making 350 bbls. daily. The company's new well was No. 7 Morse, a 150-bbl. pumper from 4,517 feet. The Union has five additional drillers on the Stern property and several more on adjoining leases. The General Petroleum should finish two or three new wells in this district during the course of the next 30 days as a result of its operations on Hugo and Mullin leases. The California Petroleum, Chanslor-Canfield Midway Oil Co., Continental and Standard should also finish one or more new wells during the same time. The Associated's No. 5 Kammerer, one of its present drillers at Richfield, cored an exceptionally promising sand at 4,359 feet and, due to the favorable texture and saturation, a good well is anticipated upon completion.

The Union's No. 3 Olinda in the Brea Olinda Field is still one of the most interesting projects in that area as the well log has shown an almost continuance oil sand from 2,000 feet down to 3,505 feet. This well will be watched very closely when tested out due to the unexpected thickness of oil sand found. The Brea Canyon Oil Co. is getting ready to bring in what should be a large producer when No. 40 is turned loose some time within the next few days from 4,821 feet. No. 41 should be finished shortly after the completion of No 40 as it recently picked up the top of the pay at 4,500 feet. The Birch Oil Co.'s No. 2-A, also in the Fullerton Field, is being held up due to a stuck drill pipe which became frozen while rotating ahead at 5,383 feet. No. 13-A on the same property recently passed the 3,000-foot level but is not expected in for another 60 days. The Fullerton Oil Co.'s No. 22 is slightly deeper than the Birch's No. 13 A, the exact depth being reported as 3,372 feet a few days ago. Due to the limited amount of drilling being done at Inglewood, Dominguez, Torrance, Santa Fe Springs and Montebello, there were no completions listed in these fields. The General Petroleum added a new well at Rosecrans, however, upon completion of No. 6 Vaughn, but it was an exceptionally small one. It is reported as a 95-bbl. pumper from 4,016 feet, the hole being finished with a 4½-inch liner. The Union's No. 4 Trust, also at Rosecrans, was recompleted a few days ago after being deepened to 6,499 feet, from which depth it is making 225 bbls. daily. This well came in under a natural flow and, although the output is cutting around 25 per cent it seems to be cleaning up and may eventually reflect this condition in increased production

Herndon & Hunter's No. 1 Robertson, an outpost in the East Coyote Hills Field in Section 19-3-9, staged a rather premature but nevertheless spectacular blowout a few days ago when the crew drilled out the cement plug preparatory to making a water test at 4,155 feet. The well had not shown any exceptional indications of oil and, while some gas had been noted from time to time, it was not thought to be present in any excessive quantity. The well got beyond control, however, and was blowing off at the rate of about 5,000,000 feet daily until capped. A fine mist of oil accompanied the gas during the first several hours but as the gas flow diminished oil production increased and the well is now flowing 300 bbls. of 22.8 gravity oil daily. The action of this outpost will probably cause some additional drilling to be undertaken and it would undoubtedly have resulted in a wild stampede for acreage if it were not that pipe line companies are not contracting nor do they desire any additional crude oil. The fact remains that this new well has opened up some additional acreage for development and this, together with the activity already under way at Atwood in the Richfield district, indicates slightly increased production in both sections during the rest of this year.

Ventura

Three new wells were completed in the Ventura Avenue Field during the past week but only one, the Shell's No. 16 Taylor, was of any consequence. This well, drilled to 6,336 feet and finished with a 5⅝-inch oil string, is flowing approximately 2,300 bbls. a day. The oil is still showing a rather high cut but is cleaning up very nicely and will undoubtedly come up to expectations after it has been on production for a few days longer. The Shell is the largest single operator in this field at present due to its work on the Edison, Taylor and Gosnell leases, although the Associated is not far behind. The latter added two new wells to its list of producers in this district as a result of the completion of No. 2-A Lloyd at 6,182 feet and No. 37 Lloyd at 5,405 feet. The former is making 225 bbls. daily while the latter is flowing 220 bbls. accompanied by approximately 2,000,000 feet of wet gas. The Bolsa Chica Oil Co. has just finished No. 2 Hartman at 6,602 feet and the oil string will be run in tomorrow. Indications are quite favorable for a large well, notwithstanding the rather unsatisfactory conditions of the Associated's No. 4 Hartman near by.

Midway-Sunset

The Honolulu Consolidated finished its No. 17 in Section 8-32 24 at Midway a few days ago and this new well is making 175 bbls. of clean 26.6 gravity oil daily from 3,112 feet. The California Petroleum also finished a new well in this area when No. 5 Calitroleum was put on the beam at 3,712 feet. This hole is pumping approximately 150 bbls. daily but the output is showing a rather high cut, although it may clean up later. The Obispo's No. 7, out in the Maricopa Flats, which was finished two weeks or so ago, is holding up exceptionally well, in fact it has shown a slight increase instead of declining as is usually the case. The Shell finished another new producer in the Mount Poso Field but this well, like its immediate predecessors, was shut in following completion due to the lack of pipe line facilities and undesirability of this heavy oil at present The company's latest completion was No. 4 Vedder, officially listed as a 500-bbl. well from 1,837 feet, and the hole having been finished with an 8¼-inch oil string carrying 325 feet of 80-mesh screen. Work in this district is going along rather slowly because of the depressed condition of the oil market and it is hardly likely any change will take place during the next six or eight months. Over in Santa Barbara County the Palmer Union has just completed a new well pumping approximately 200 bbls. a day from 3,250 feet. This was No. 9 Stendall, spudded in several months ago when conditions were not quite so threatening. The Miley Exploration Co. has several new rigs going up at Goleta but only a small amount of work is expected to be undertaken in this field during the next several months. An abandonment notice has just been filed on No. 3 which was only a portable job intended primarily to test out the shallow sand found by Miley in the original wildcat at around 500 feet. The Santa Barbara Oil Co. is down 410 feet in No. 1 Continental and should be in a position to pick up the Miley zone within two weeks if it underlies this property. The California Eastern and the Graham & Loftus Oil Co. are expected to spud in their respective tests in the near future and, while Clarence Berry and the Barnsdall Oil Co. will also drill in this section their holdings are some distance from the discovery well.

Southern California Wildcats

There are several wildcats in southern California scheduled for abandonment in the very near future due to unsuccessful attempts to develop production but there will probably not be any reduction in the amount of prospecting work as several more will be started to replace these dusters. The Pan American recently abandoned a deep dry hole in the San Fernando Valley and the Standard is expected to follow a similar procedure soon, unless its No 1 University in this area shows a decided change for the better. This unfavorable state of affairs, however, will not deter the Shell and this company is therefore proceeding to drill a wildcat in Section 4-2-15. This is about 2 miles west of the city of San Fernando and a similar distance northwest of the Standard's present test.

Bandini Area

The Bandini area presents a somewhat similar condition to that existing in the San Fernando Valley in that there is one possible abandonment in view in addition to some six or eight drilled and abandoned previously. The possible abandonment is No. 1 Bandini of the Petro-

leum Securities, now rotating ahead at 5,860 feet, while the projected test is George F. Getty's No. 1 Tubbs at Rivera about a mile or two northwest of Santa Fe Springs. The closest wildcat to this location was the Standard's Hadley wildcat, which was carried down to around 6,000 feet a few years ago. No. 1 Bandini of the Petroleum Securities is about 5 miles north of Getty's new well, which it is understood is being drilled on a sublease from the Marland which company was the first to start leasing in that section. The other majors, however, are apparently well protected as they all hopped in and caused acreage to soar sky high. Several million dollars have been expended in the Bandini area in attempting to find an uplift of the Santa Fe Springs Field but none of the various tests drilled to date has had more than a little encouragement. The Oak Ridge Oil Co. found some excellent showings several years ago but it later developed that the oil was problably a circulating fluid which had been used previously in loosening some drill pipe which became stuck. It cost the company about $300,000 to arrive at this deduction, which was borne out by the fact that none of the other three wells spudded in subsequently found anything of interest.

The Smith Petroleum's wildcat in the Hawthorne area has proven somewhat of a freak in that it has failed to result in commercial production, although the gas pressure at times mounts to well over 600 pounds. A small quantity of oil has been produced from time to time but so far the result of the production test has been rather unfavorable. The Petroleum Securities is making fairly good progress in its second Palos Verdes' wildcat and something definite as to its potentiality may be expected within the next 30 days. This area looks rather promising, although none of the several tests drilled in this vicinity has found anything except a few minor showings. The Shell has material on ground for No. 1 Allec, a wildcat to be drilled in the Placentia district and due to its location this test is receiving considerable favorable comment. The General Petroleum's wildcat at Sunset Beach, approximately midway between the Huntington Beach and Seal Beach Fields, has yet to find its first major showing, notwithstanding that over 5,070 feet of hole has been made to date. The outlook is not any too promising but drilling will continue in the hope of picking up a deep sand.

Northern California Wildcats

The Pacific Eastern is hauling in 10-inch casing to be landed in its Bakersfield wildcat at approximately 4,000 feet. It is reported that this pipe is being landed for protection purposes but there has been a persistent rumor that the company has cored 10 feet of sand and will test out this horizon before drilling ahead. That the outlook is favorable is evidenced by the fact that the Pacific Eastern recently secured some additional acreage in this vicinity. The Milham Exploration Co. spudded in its second test at Buttonwillow several days ago and both are going along very satisfactorily. The Chanslor-Canfield Midway Oil Co.'s wildcat at Delano is rotating ahead in a sand at 1,342 feet and, while the company is apparently quite well satisfied with the possibilities of this section, some are inclined to regard the area as somewhat unfavorable. This company should be in a position, however, to judge the outlook as it has already drilled one hole in this section. Wildcat work in the Kettleman Hills area is practically at a standstill, although the General Petroleum recently spudded in its second wildcat. The company's first hole is badly junked and ultimate recovery does not look any too promising. Developments in the Camarillo and Montalvo districts in Ventura County were likewise quiet, although the Standard is making preparations to land a string of 8¼-inch in a wildcat in the latter area. The Star Petroleum recovered from a rather difficult fishing job in its Venura County wildcat in Section 13-3-23 and drilling has been resumed. The Elbe Oil Co. recently reported a favorable showing in a shallow wildcat near Edison in Kern County and as usual the regularly expected wild scramble is on for acreage. The Elbe has not tested the showing found at about 1,600 feet in its wildcat in Section 20-28-29 but intends to do so shortly. This area became quite prominent last year as a result of a reported showing in a water well but for some reason or other no great amount of drilling was undertaken. George F. Getty recently leased 80 acres in the south half of Section 32-29-29, but this is for protective purposes only as the lease does not require drilling within five years. The General Petroleum is a large lease holder in this section and this company recently augmented its potential oil holdings by signing up another 2,000 acres. A number of other independent operators also have secured leases but in most cases immediate drilling is not compulsory.

SOUTHWEST WILDCATS

(Continued from Page 53)

of the gas in the Rycade Oil Corp.'s No. 1 Chittim. Several months ago the well went into about 4,000,000 feet of gas at 5,517 feet and drilled to 5,525 feet and was held up there for months with a fishing job. At 5,588 feet it was another fishing job and now has 9,260,000 feet of gas and the extra high gravity oil which was amounting to about 10 bbls. daily has increased in about like proportion.

Duval County

Schlessinger Oil Co. is making location in Survey 60, for No. 2 Hahl. George B. Pickett is making location in NW cor. of Ball ranch for No. 1 Ball. Ralston M. Talbott, Inc., No. 1 Margarite, Survey 4, located 2,500 feet to northwest lines and 1,320 feet to northeast lines, is standing at 1,607 feet. Humble Oil & Refining Co.'s No. 12 Singer, Survey 4, located 2,600 feet to north line and 2,000 feet to west lines, is drilling at 2,458 feet. Humble-Reiter-Foster's No. 4 Kohler, Survey 400, located 660 feet to SW cor., at 2,697-2,705 feet, tested about 30 bbls. of oil to 220 bbls. of water; water is brackish and well is being plugged back; No. 5 Kohler, Survey 395, located 1,080 feet to east line and 530 feet to south line, is drilling at 2,143 feet. Humble Oil & Refining Co.'s No. 2 Welder-Woods, Survey 102, located 5,280 feet to south line and 4,500 feet to east line, is drilling at 991 feet. Dixie Oil-Southern Crude's No. 1 Gray has derrick up at 330 feet to NE cor. of Survey 316.

Jim Hogg County

Holden and others' No. 3 Jones, Share 27, Block 136, located 330 feet to east line and 440 feet to north line, is drilling at 1,360 feet. Harry Hamilton and others No. 1 Holbien, Block 44, Hamilton Subdivision, 158 feet to south line and 363 feet to west line, is drilling at 1,400 feet.

Starr County

Commonwealth Oil Co.'s No. 1 Garcia, Survey 538, located 2,722 feet to south line and 2,102 feet to west line, is drilling at 140 feet. This test was taken over from T. C. Hadley. Southern Exploration Co.'s No. 2 Russell, Share 173-B, Porcion 69, located 150 feet to north line and 950 feet to west line, is rigging up. Milham Corp.'s No. 2 Salinas, Porcion 111, SE cor., is fishing at 3,220 feet. Sterling & Suladie's No. 1 Yzaguirre, Block 8, at 1,320 feet to SW cor., is standing at 3,011 feet; well will be deepened.

Webb County

Killam-Maddox's No. 1 Bruni, Survey 4, Block 5, located 150 feet to northeast and southeast lines, making 10,000,000 feet of gas and 1,000,000 gallons of fresh water, total depth 1,400 feet, and gas is coming from 528 feet, has been closed in and is drilling deeper. Co'e Petroleum Co.'s No. 36 Benavides, Survey 412, Block 14, at 169 feet to east line and 266 feet to north line, 2 or more miles from the north edge of the Cole Field, at 2,328-36 feet on test showed 700 pounds rock pressure and big volume of gas. Cintex Petroleum Co.'s No. 1 Peal, Survey 72, Block 5, located 150 feet to SE cor., is drilling at 2,350 feet. Rio Grande Oil Co. is moving on to deepen No. 1 Urbahn from 1,600 feet, located in the Santo Tomas tract at 10,000 feet to south line and 20,000 feet to east line. O. W. Killam's No. 1 Billings, Survey SE NW Survey 43, located 150 feet to south line and 750 feet to west lines, is drilling at 2,400 feet.

Zapata County

Earl K. Bateman has made location in Share 2, El Crullo grant, for No. 2 Sorapio Vela. Buffalo Erie Syndicate is skidding derrick over for No. 3 Martinez, Block 2, R. V. Hill Subdivision.

Bexar County

Associated Petroleum Corp. has made location in W. Caruthers Survey 503 feet east of No. 13 for No. 14 Caruthers; location has been made in Rodiquez Survey No. 49 at 150 feet to SE cor. for No. 1 Koehler. N. A. Saigh is rigging up for No. 2 Frees, Survey 49, at 150 feet to west line and 750 feet to south line. Witherspoon Oil Co.'s No. 5 A. M. Pyron Survey 274, at 200 feet to CWL, has been abandoned dry at 1,796 feet. W. L. McClanhan has spudded in No. 5 Sodrok in the Adkins Field, at 300 feet east of No. 4, which has just been completed, making 2 bbls. on the pump. Hamilton Land & Development Co. has made location at Gas Ridge, 2,810 feet southeast of No. 7 for No. 18 fee. A. R. Beal trustee's No. 1-A Ackerman, Survey 133½, is changing to heavier rig, total depth around 200 feet.

Bastrop County

The Texas Company's No. 1 Goertz, Survey 349, at 200 feet to west line and 150 feet to south line, is drilling at 500 feet.

Bee County

D. Hewitt is rigging up in Bee County for No. 1 G. A. Ray. W. S. Poole has made location 5 miles southeast of Beeville for No. 1 J. C. Wood. Nichols & White's No. 1 Hicks, Block 19, NW cor., is drilling at 1,200 feet.

Brooks County

The Texas Company is moving in timbers for No. 1 Lasater, Survey 329, at 1,250 feet to north line and 1,100 feet to east line.

Brewster County

Van McPhail's No. 1 McIntyre, Survey 59, Block 352, at 150 feet to SE cor. and 8 miles south of Alpine, is moving in rig.

Caldwell County

Sun Oil Co. No. 1 Martindale, J. D. Dial Survey, 3,988 feet to west line and 1,643 feet to north line, has been spudded in and topped chalk at 1,134 feet and is now drilling at 1,284 feet; No. 1 Talley, Swearingen Survey, 650 feet to northeast lines and 1,675 feet to southeast lines, is drilling at 2,430 feet, with chalk topped at 2,340 feet. Lou Gould Sheddan's No. 1 W. F. Davis was to have been spudded in last Saturday. Fred Adams' No. 1 Walter Ellison, near Seawillow, tested dry, at 2,090 feet in Austin chalk from 2,016 feet. Sutton & Smith's No. 2 Robert Carter, G. Hinde Survey at 2,601 feet, tested dry, with slight amount of oil and gas.

Comanche County

William T. Amis has made location in NW cor. of Percifield Survey for No. 1 Zellars.

DeWitt County

McNeil & Matthews' No. 1 A. D. Kaiser, A. Dillard Survey, 1,508 feet to NW cor., is drilling at 2,000 feet. Empire Southern Oil Co. is getting ready to spud in No. 2 Smith on the C. G. Smith tract. Yoakum Development Syndicate's No. 2 Steinman well is drilling at 2,000 feet and making good progress. The McGee well is due to spud in soon on the E. A. Tully tract near Edgar.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, 700 feet to north line and 2,000 feet to east line, is drilling at 1,942 feet.

Fayette County

La Fayette Oil Co.'s No. 1 Marquardt, Phillips Survey, 976 feet to northwest lines and 400 feet to southwest lines, is shut down for repairs in the Yegua formation.

Goliad County

Houston Oil Co.'s No. 3 Pettus, 10 miles west of Goliad, is drilling at 2,804 feet in gumbo; No. 2 Parks, 8 miles east of Goliad, is drilling in shale at 3,390 feet.

Gonzales County

Bristol Oil & Gas Co.'s No. 2 Deman, A. Zumwalt Survey, is shut down at 807 feet. E. Lee Moore's No. 1 Elder is drilling at 2,240 feet. Joe Bruner's No. 1 Vaughan, Kent Survey, 200 feet to west line and 300 feet to south line, is reaming at 1,040 feet to set casing.

Guadalupe County

Pat Armstrong's No. 1 Dale is shut down in top of the chalk at 1,652 feet. F. A. Lain's No. 1 F. C. Weinert, W. K. Estell Survey, 150 feet to north line, is drilling at 1,000 feet.

Hays County

J. E. Rodger's No. 1 Hohenburg 2½ miles east of San Marcos, has completed rigging up and has set casing to shut off water in preparation to making a test.

Karnes County

Alamo Drilling & Leasing Co.'s No. 1 Szalwinski, L. Manchaca Survey, 500 feet to northeast lines and 200 feet to southeast lines, at 1,803-85 feet, has an oil sand and is shut down.

Kerr County

Walker-Van Duyn's No. 1 Leigh, Survey 38, at 500 feet north of river and 150 feet south of railroad, is still fishing at 2,250 feet.

Kinney County

W. A. Stephens and others' No. 1 Jim Clamp, Survey 364, Block 345, 5,362 feet to west line and 5,674 feet to south line of survey, has been rained out and forced to shut down at 550 feet. Havelin Oil Co.'s No. 1 well, 18 miles from Del Rio, is fishing for bailer at 4,305 feet in black shale.

Lampasas County

Roeser & Pendleton, Inc., has made location in center of W. A. Martin Survey for No. 1 Busch. W. B. Abney and others have spudded in and are drilling at 100 feet in test within city limits of Lampasas on North Grande Avenue and near the test drilled several years ago to 2,000 feet. Davis & Bullock's No. 1 W. H. Bunch, 8 miles north of Lampasas, is drilling at 1,100 feet in shale, with casing set to shut off water. Smith and others' No. 1 Faught, 2 miles from Nix and 12 miles west of Lampasas, is drilling at 425 feet after shut down, gas has been struck in the well and also a cap rock with oil showings.

Lee County

Bob Plunkett is making location for the test in the James Nimmo Survey, on leases blocked by Lehmann. M. O. Ricketts and others' No. 1 Sanders, Joseph Maxmillian League, 250 feet to SE cor., is drilling at 800 feet.

Live Oak County

W. S. Stoval-W. W. Kellys' No. 1 Stewart, William J. Cannon Survey, 200 feet west of Nueces River and 200 feet south of Lagarto Creek, is preparing to start drilling. Warren Wood Hunt's No. 1 B. McNeil, Jane Curry Survey, at 4,000 feet to NE cor., has been spudded in. Houston Oil Co. has made location in J. Muellin Survey at 700 feet to CNL for No. 3 Sellers; No. 17 Cartwright, Cannon Survey, is drilling at 2,200 feet; No. 1 Dunning, M. B. Kivlin Survey, has set casing at 2,085 feet. J. W. Walton's No. 1 Roberts, west of Three Rivers, is drilling at 1,782 feet.

Medina County

Empire Southern Oil Co. is preparing to drill in No. 1 Andrew Allen. Schermerhorn Oil Co.'s test in the Johen Degent Survey has derrick up. Witherspoon Oil Co.'s No. 2 Redus, Survey 92, is shut down on account of titles; No. 1 Nixon, Survey 119, at 1,500 feet to east line and 1,600 feet to south line, is drilling at 1,365 feet with chalk topped at 1,310 feet. R. P. O'Brien's No. 1 Nixon, Survey 531, SE cor., is shut down at 800 feet. Fennell & Williams' No. 2 John Fohn, Survey 115, east 100 acres, is at 1,272 feet, at 50 feet in shale, showing traces of oil. Medina Oil Co.'s No. 10 Taylor has been completed dry at 456 feet. J. H. Gray and others' No. 1 Louis Mann, Survey 16, at 350 feet to north line of farm, is having trouble to set liner. Ina Oil Co.'s

No. 2 Fingers, Survey 746, Lot 5, at 300 feet south of No. 1, is drilling at 1,400 feet. California-Medina's No. 1 Rother is pulling casing at 3,119 feet in preparation to drilling deeper.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, center Survey 14, has set casing at 820 feet to shut off water coming from 810 and has shut down to wait for cement to set. Johnstone & Hout's No. 1 Whipff, 9 miles from Eagle Pass, is milling out casing shoe at 1,210 feet. Ryeade Oil Corp.'s No. 1 Chittim is drilling at 5,588 feet in gray sandy lime and is making 9,260,000 feet of wet gas daily; No. 2 Sullivan is reaming at 3,822 feet to set 9-inch casing to shut off salt water coming from 3,760 feet.

Mexico

Ohio-Mexico Oil Corp's No. 1 well is fishing in arkose at 1,000 feet. This test is south of Cuarto Cienegas. Its No. 1 Lambraon, 30 miles west of Del Rio and 27 miles west of Villa Acuna in Coahuila, Mexico, is location. All three tests, so far drilled by the Ohio-Mexican Oil Corp., have encountered a great deal or arkose.

McMullen County

R. L. Taylor's No. 2 Shiner, Survey 14, at 150 feet to SW cor., is location with drilling to start within 30 days after completion of No. 1; No. 1 Shiner, Survey 8, located 150 feet to NE cor., is rigging up. Nelson & Wood's No. 1 Shiner, Block 47, Survey 48, located 1,000 varas to east line and 350 varas to south line, is shut down for repairs at 783 feet. George Pickett's No. 1 Jacobs, Survey 7, located 660 feet CNL is drilling at 1,720 feet. Dodson and others' No. 1 Franklin, SW Survey 31, is shut down at 1,100 feet. Hous on Gulf Gas Co.'s No. 5 Jacobs, J. Rees Survey, 600 feet to north line and 2,500 feet to west line, is shut down at 904 feet. George M. Ball's No. 1 Kuykendall, Block 7, is shut down at 1,390 feet.

Neuces County

Pearson and others' test, on the John Dunn tract, on the south side of the bay, has been completed, making 40,000,000 feet daily. Derrick is up for test on the Weil farms, west of Corpus Christi, by W. L. Pearson.

San Patricio County

F. S. Smiley's No. 1 T. E. Wilson, one-quarter mile northwest of Angelita, has derrick up. W. L. Pearson has made location for No. 6 Cage in D. C. Rachal Survey, 1,500 feet south of No. 5. Huber & Crawford's No. 1 Mathis, Delgavo Survey, Block 17, 300 feet to northwest lines and 2,500 feet to southwest lines, is drilling at 2,275 feet. John Sigmund's No. 7 McCampbell is drilling at 4,600 feet and working two tours.

San Saba County

Wilmot Oil Co.'s No. 2 Rocky Pastures, 9 miles northeast of San Sabo and 50 feet from No. 1, is drilling at 900 feet.

Wilson County

Thomas and others' No. 1 August Hases, Survey 124, located 300 feet to NE cor., is rebuilding derrick.

Zavala County

J. G. Pundt is moving in machinery for test on the West ranch.

LA.-ARK. WILDCATS

(Continued from Page 50)

Oil & Refining Co.'s No. 1 Blanton, Section 23-23-12, is blowing wild, estimated at 30,000,000 feet of gas. It was completed about 10 days ago and shut in but when opened again the past week it blew out the liner, breaking connections with the two 6-inch flow lines. It is in sand at 3,086-92 feet. W. R. Ramsey's No. 1 Robertson, Section 22, is drilling at 2,000 feet. Tate Co. has a derrick up for No. 1 Dodson, Section 15.

Caldwell Parish

Southern Crude Oil Purchasing Co.'s No. 8 Caldwell, Section 5-13-5e, is shut down because of high water after having had 10-inch casing set at 140 feet.

DeSoto Parish

Craise & Hintz have abandoned as dry at 3,315 feet No. 1 Riggs, Section 27-14-13. Magnolia Petroleum Co.'s No. 1 Logan, Section 17-10-12, is drilling at 500 feet. William Sebastian Syndicate's No. 1 Sebastian, Section 11-10-13, is in a sandy lime rock at 2,340 feet. The Texas Company has cemented 6-inch casing at 2,395 feet in No. A-12 Wemple, Section 2-12-12.

Claiborne Parish

Triangle Drilling Co. has a rig up for No. 1 Byrd, Section 17-19-5.

Franklin Parish

The Exploration Co. has abandoned and junked No. 1 Moore, Section 12-11-6e, at a total depth of 2,120 feet. Barbour Oil Co.'s No. 1 Baker, Section 3-15-7e, has been shut down at 2,000 feet. This formerly was drilled by Robinson & Long.

Grant Parish

Philp and associates' No. 1 Barrett, formerly No. 1 Holmes, Section 17-9-1e, is being core drilled at 1,561 feet. L. C. Swope is drilling out the 6⅝-inch plug cemented at 1,590 feet. Rue and associates are resetting 10-inch casing at 97 feet in No. 1 Bliss & Williams, Section 10-7-4w. Total depth of the hole is 1,800 feet.

La Salle Parish

Tunica Petroleum Co. has abandoned No. 23 L. & A., Section 9-7-2e, at 2,380 feet. The same company's No. 25 L. & A., Section 6-8-3e, is being drilled in shale at 1,867 feet.

Natchitoches Parish

Wenzell and associates have abandoned the derrick which had been erected for a test at No. 1 Brown, Section 38-11-7. Three League Oil Co. also has abandoned the derrick and moved the rig at No. 1 Long, Section 34-10-7w. Gulf Refining Co. has abandoned as dry at 1,400 feet No. 1 Cobbie and Hardaman, Section 9-7-7w. H. O. Readheimer has pulled the casing and abandoned No. 1 Wafer, Section 3-11-8. The test was dry at 1,585 feet. Lawson & Pharris' No. 1 Clark Morse Lumber Co., Section 23-5-6, has been shut down at 2,595 feet waiting for a drill stem. Ohio Oil Co. is drilling No. 1 Thomas, Section 23-13-6w, at 1,476 feet. Tunica Petroleum Co.'s No. 24 L. & A., Section 35-13-6w, is in rock at 2,640 feet.

Rapides Parish

Love and associates have abandoned No. 1 Voda, Section 12-4-1e, at 2,550 feet, and have moved away the rig. Minnesota Oil Corp.'s No. 1 Wettermacfl, Section 7-5-3w, tested fresh water at 1,723 feet.

Red River Parish

Gulf Refining Co. has completed No. 37 Robinson, Section 25-13-11, pumping 80 bbls. from a total depth of 2,561 feet. The same company has cemented 6⅝-inch casing at 2,487 feet in No. 23 Kennedy, Section 24-13-11. Phillips Petroleum Co. is coring at 2,710 feet in No. 1 Long Bell, Section 16-12-8.

Richland Parish

Gulf Refining Co.'s No. 2 Rhymes, Section 5-16-6e, is being cored at 2,455 feet. The same company's No. 2 Seibert, Section 11-16-5e, is drilling at 1,200 feet. No. 1 Wayne L. & T. Co., is shut down at 2,865 feet because of high water. Ruston Drilling Co. has cemented 8-inch casing at 926 feet in No. 1 Earle, Section 5-16-6e. Standard Drilling Co.'s No. 1 Delta Hardwood Co., Section 22-16-7e, is shut down at 200 feet because of high water. Stovall Drilling Co.'s No. 1 Mitchell is in shale at 2,345 feet. Tex-Louisiana Carbon Co.'s No. 1 Broughton, Section 1-15-6e, is being cored at 2,536 feet.

Sabine Parish

Arkansas Fuel Oil Corp. completed No. 3 Logan, Section 33-10-12, flowing 415 bbls. daily at 3,199-3,213 feet. The same company's No. 4 Logan was completed flowing 110 bbls. at 3,233-65 feet. The No. 5 Logan, Section 28, is swabbing to test at 3,224 feet. Beckman & Freeman's No. 1 Logan, Section 26-10-12, tested 5,000,000 feet of gas with a showing of oil at 3,206-23 feet. Louisiana Oil & Refining Corp. has a derrick up for No. 1 Logan, Section 28. Magnolia Petroleum Co.'s No. 1 Hall, Section 33, has been started and is at 40 feet. Moffett and associates' No. 1 Moore, Section 5-9-12, is in lime at 3,015 feet. Woodley Petroleum Co.'s No. 1 Robinson, Section 33, has had 10-inch casing set at 225 feet.

Winn Parish

Humble Oil & Refining Co. is rigging up at No. 21 L. & A., Section 28-19-2w. H. L. Hunt is drilling at 1,200 feet in No. 1 Tremont, Section 27-10-1w. Ohio Oil Co. has started a derrick for No. 1 McCarty, Section 5-12-1w. M. M. Roark is underreaming at 300 feet in No. 1 Southern Minerals Co., Section 19-11-3w. Standard Oil Co.'s No. 1 Tremont, Section 1-12-2w, is in hard lime at 3,800 feet.

ARKANSAS

Union County

Marine Oil Co.'s No. B-1 Winn estate, Section 10-18-13, in the Lawson-Urbana district, has been abandoned as dry at 3,002 feet. Superior Oil Co.'s No. 1 Jerry, Section 32-17-13, also has been abandoned at a depth of 3,022 feet. Garrett Modisette Drilling Co.'s Union Saw Mill Co., Section 7-18-13, is being core drilled at 3,908 feet. Lion Oil & Refining Co. has started a derrick for No. 1 Murphy Land Co., Section 23-18-18. Lyell and associates are rigging up for No. 1 Stegall, Section 11-17-13. Marine Oil Co. has cemented a short string of 4½-inch casing at 2,677 feet in No. A-2 Thompson, Section 10-18-13, and now is drilling at 2,684 feet. It tested salt water at 2,664 feet. J. W. Olvey's No. 1 Simmons, Section 15-18-13, bailed the 6-inch casing dry at 2,666 feet and later blew in making an estimated 75,000,000 to 100,000,000 feet of gas. Rovenger Oil Corp.'s No. 1 McCain, Section 4-17-14, tested salt water at 2,612 feet and cored a sand showing oil at 2,642-49 feet. Simms Oil Co.'s No. 1 Crawford, Section 14-18-13, is coring at 2,557 feet. Sun Oil Co. has started drilling in No. 1 Thompson, Section 10, and is at 20 feet.

Ouachita County

J. G. Reynolds is making arrangements to abandon No. 1 Chandler estate, Section 3-14-18. It tested salt water at 1,833 feet. Humble Oil & Refining Co. has set 10-inch casing at 42 feet in No. 1 Lancaster, Section 15-14-19.

Bradley County

Johnson and Adams are drilling at 1,930 feet in No. 1 Southern Lumber Co., Section 12-12-12.

Columbia County

Mitchell & Isles are drilling at 1,400 feet in No. 2 Bodcau, Section 4-20-21.

Grant County

Shaffer Oil & Refining Co. is at 1,700 feet in No. 1 Long Bell, Section 36-5-12.

GULF COAST FIELDS

(Continued from Page 54)

No. 3 Jones was deepening around 4,000 feet No. 1 Saunders was at 3,830 feet. The Marland Oil Co. is fishing in No. 3 Prudent at 3,400 feet. No. 4 Prudent was at 4,635 feet. The Rio Bravo Oil Co.'s No. 6 P. F. was at 3,955 feet and No. 7 drilling at 3,975 feet. The Moody Oil Corp.'s No. 1 Whitehead is at 567 feet. Anderson & Plummer's No. 1 Whitehead is rigging. M. Kouri's No. 2 Jones is at 1,610 feet The Navarro Oil Co. has a derrick up for No. 2 Humble as have Lee & Woodward for No. 2 Settegast on the south end of the lease, 1,400 feet from No. 1 and offsetting the Gulf Production Co. The above are all on the northwest flank of the dome. On the east side, the Texas Exploration Co.'s No. 10 Dooley is at 3,932 feet.

High tides in the bay off the Goose Creek Pool caused several drilling rigs to shut down. The Humble Oil & Refining Co.'s No. 10 Beaumont in the bay is idle at 4,300 feet, as is the M. & B. Oil Co.'s No. 5 Scorrgea at 2,200 feet and the Lake Shore Oil Co.'s No. 3 Duke at 3,450 feet for the same reason The Gulf Production Co.'s No. 27 Smith is around 2,675 feet with No. 14-A Wright rigging to deepen. The Humble Oil & Refining Co. has a location for No. 71 Smith, Wilson and others' No. 7 Busch is milling at 1,815 feet.

Liberty County

In the Hull Pool, the Republic Production Co.'s No. 98 Dolbear is deepening. The Gulf Production Co.'s No. 11 Thomas is at 2,765 feet. No. 64 Phoenix is deepening with a location made for No. 86 Phoenix. The Texas Company's No. 2 Hannah is at 4,000 feet and No. 1 Armlin is around 4,135 feet. The Texas Company-Vacuum company have a location for No. 7 joint Hannah. The Hull Oil Co.'s No. 2 Harrison is at 3,345 feet. The Big Dome Oil Co. has spudded in No. 1 Palmer.

In the South Liberty-South Dayton district, the Vacuum Oil Co. is deepening No. 7 Barrett on the east side of the Trinity River. On the west side, the Humble Oil & Refining Co.'s No. 7 Welder is at 3,936 feet. The Gulf Production Co.'s No. 2 Marshall fee is at 3,175 feet. No. 1 Bingle is at 3,980 feet. The Associated Oil Co.'s No. 1 Hirschfield is temporarily idle. Further rises in the river will result in a suspension of operations in this district.

Hardin County

The Texas Company's No. 3 La Jarza, a deep test on the east side of the Batson Pool, is drilling around 4,800 feet. The Kirby-Capitol Oil Co.'s No. 7 Hodges on the north side is at 3,265 feet. In the older section the East Batson Oil Co. is trying to pack off the salt water in No. 8 Counsleman at 1,222 feet. The Sterling Oil Co.'s No. 6 Hooks is at 1,476 feet

In the Sour Lake Pool, the Yount Lee Oil Co.'s No. 5 Jackson is drilling at 2,345 feet. The Texas Company's No. 1 Homestake is around 2,000 feet.

The Sun Oil Co.'s No. 174 W. T. C. in the Saratoga Pool is drilling at 976 feet. The East Side Oil Co.'s No. 1 Ogden, a proposed deep test on the east side of the pool, is drilling below 2,470 feet.

In Other Pools

At High Island in Galveston County, the Sun Oil Co.'s No. 12 Lockhart is at 2,175 feet and No. 11 Cade is around 2,565 feet milling casing.

The Texas Company has a location for No 23 Arnold at West Columbia.

The Gulf Production Co.'s No. 1 Granger in the south end of the Orange Pool, is rigging to drill deeper.

South Louisiana Pools

In the Lockport Pool in Calcasieu Parish, north of Lake Charles, which is operated exclusively by the Vacuum Oil Co. and the Gulf Refining Co. jointly, the liner in No. 2 Bordages is being cut around 3,575 feet. No. 1 G. W. Farquhar is at 5,475 feet. No. 5 Farquhar is drilling at 3,754 feet. No. 2 Friedberg & Wolf is working over at 4,400 feet with a derrick up for No. 4. On the Miller acreage these interests are fishing in No. 11 at 3,770 feet. No 15 is drilling at 3,165 feet and No. 16 at 3,565 feet with a location for No. 17 Miller.

In the Edgerly Pool, the Gulf Refining Co.'s No. 41 Bright-Penn is at 3,655 feet. The Rex Petroleum Co.'s No. 4 Hunter is drilling deeper. The Hercules Oil Co.'s No. 1 Paraffin is around 3,210 feet. The Crotty Oil Co. will deepen its No. 14 Lilliard.

The Vinton Petroleum Co.'s No 19 Vincent in the Vinton Pool is drilling below 2,735 feet with a location made for No. 7 Rescue. The Edgerly Petroleum Co.'s No. 12 Vincent is drilling around 3,470 feet. Marrs McLean's No. 1 G. N. G. is shut down at 2,175 feet.

Coastal Domes

Four tests drilling around semidomes in Coastal Texas and two in Louisiana were abandoned during the week. The deepest of these was the Gulf Production Co.'s No. 2 Bordages, which was plugged in heaving shale at 5,400 feet. In Brazoria County, off the Allen Dome, the Roxana Petroleum Corp quit No. 2 Reese in gyp at 2,000 feet. The Texas Company abandoned No. 2 Sweeney, near Danbury in the same county at 1,260 feet. Off the Long Point Dome in Fort Bend County, the Gulf Production Co. quit No. 24 Davis in gyp at 1,055 feet.

At Hackberry Island Dome in Cameron

Parish, Louisiana, the Union Sulphur Co. abandoned two tests. No. 2 Gulf land was plugged at 2,439 feet and No. 2 Vincent quit in gyp at 1,810 feet.

In the Raccoon Bend district in Austin County, the Humble Oil & Refining Co. and Valley Oil Co.'s joint No. 2 Reese is drilling around 1,510 feet. No. 2 Austin College is at 2,033 feet and casing was set and cemented in No 3 at 1,080 feet. No. 1 Bellville School lands is at 2,333 feet. No. 1 Washington is around 1,080 feet. Locations have been made for Nos. 1 Woodley and 1 Deutrick. J. J. Kane, of Galveston, is starting No. 1 Knolle. Greene, Morgan and Mewis' No. 1 Mewis, north of Bellville, is drilling around 800 feet. At Hickory Mound, Graves and others' No. 1 Cleveland is drilling around 1,109 feet.

Brazoria County—Allen Dome: Roxana Petroleum Corp.'s No. 1 Bernard River is below 5,100 feet. No. 3 Allen is below 5,700 feet, the deepest wildcat in the Coastal region. Clemens Dome: Roxana Petroleum Corp.'s No. 2-A Pabst is drilling around 4,719 feet and No. 4 Clemens is around 4,300 feet. Stratton Ridge Dome: Pure Oil and Humphreys Corp.'s joint No. 1 Armstrong is around 2,985 feet. The Gulf Production Co.'s No. 2 Perry, on the south flank of the dome, is drilling around 2,000 feet. The Associated Oil Co.'s No. 1 Seaburn is at 3,065 feet. Staley and others' No. 1 Glover, near Anchor, is drilling about 708 feet.

Fort Bend County—Long Point Dome: Gulf Production Co.'s No 4 Beard is around 2,815 feet. No. 2 Wolfe is at 818 feet. No. 2 Trone is drilling below 1,011 feet.

Harris County

Harris County—Humble Oil & Refining Co.'s No. 1 Warren, Hockley Dome, in the northwestern part of the county, is drilling below 968 feet. Dr. P. S. Griffith's No. 2 fee, 12 miles north of Houston, is fishing at 3,115 feet. The Atlantic Oil Producing Co.'s No. 1 Burt & Griffith, north of Humble, is at 3,477 feet. Brain and others' have a location south of Tom Ball.

Jefferson County — Fannette Dome: Gulf Production Co 's No. 3 Bordages is drilling around 4,800 feet. Big Hill Dome: Houston Oil Co.'s No. 1 Fitzhugh is drilling at 4,750 feet. Edmund trustee's No. 1, northwest of Port Arthur, is drilling below 2,345 feet.

Liberty County — Moss Bluff Dome: The Union Sulphur Co.'s No. 6 Kyle is rigging. The Liberty Bell Oil Co.'s No. 1, north of the town of Liberty, is around 500 feet. The Dayton Oil Co. is starting No. 2 Jones in the old North Dayton Pool.

Montgomery County—Brain and others' No. 1 Fitch, north of Spring, is around 2,400 feet.

Matagorda County — Hawkinsville Dome: Gulf Production Co.'s No 3 Sanborn is at 1,705 feet. No. 2 Parkinson is drilling around 1,400 feet, with a location made for No. 3. No. 8 Craig is drilling at 4,321 feet.

Orange County—W. C. Wells' No. 1 Stark is drilling around 355 feet. J. T. Miller Drilling Co.'s No. 1 in the Gum Island section is rigging.

Washington County—The Pratt-Hewitt Co.'s No 1 Krimiscky is drilling below 2,135 feet. C. A. DeWare's No. 1 Lehmann is around 2,695 feet.

Walker County—Southern Crude-Dixie Oil Co.'s No. 1-A Henderson is starting.

Shelby County — The Arkansas Fuel Oil Co.'s No. 1 Bouland Lumber Co. is drilling around 3,250 feet. Clark & Melat's No. 1 Pickering is at 2,765 feet.

Nacogdoches County—Lewis & Stein's No. 1, near Chrino, drilling around 875 feet. A score of tests have been drilled in the county during the past 15 years, drilling to from 1,200 to 3,500 feet. They have been located in widely scattered sections of the country. A shallow sand field has been producing since 1887, located 14 miles southeast of the town of Nacogdoches. The sands are from 200 to 400 feet. More than 500 wells have been drilled, averaging one-half barrel per day initial. The crude has a high lubricating content but very little gasoline. The Yuba Refining Co., with a small plant with a capacity of 150 bbls. per day at Nacogdoches, takes the output of the field. At present the refinery is shut down for repairs.

The Houston Oil Co. has a block of 3,300 acres in the county on which some 30 wells have been drilled, but only three or four are being pumped at present. The oil is brought to the surface by a very primitive method. The "pumping equipment" consists of a mule, a pulley through which a long rope is run and a bailer.

LOUISIANA

Eight New Domes

Eight new domes have been located in central and southern Louisiana by geophysical exploration methods. They add a 60 mile circle to the potential producing areas of the state. Two of the discoveries are in Ascension Parish, which is east of the Mississippi River. Both were located by the Gulf Refining Co. They are the Sorrento Dome, Sections 15 and 16-10s-4e, and the Darrow Dome, Sections 19 and 32-10s-2e.

Four of the prospective pools are in Iberville Parish, locations and the acreage held as follows: Bayou Blue Dome, Sections 72-75, held by the Union Sulphur Co.; Bayou Henry Dome, Section 61-8s-10e, held jointly by the Union Sulphur Co. and the Standard Oil Co. of Louisiana; Bayou de Glaise Dome, held jointly by the same companies and located in Sections 78, 79, 85 and 86-8s-8e.

The Gulf Refining Co. of Louisiana has two more in addition to the two in Ascension Parish. One is in La Fourche Parish, Section 63-15s-15e. The other is in Baton Rouge Parish, known as the Grassette Dome, located in Sections 59 and 60-8s-11e.

Geophysical exploration work is general all over the central and southern parishes and is being conducted by practically all the major companies.

Cameron Parish — Hackberry Dome: Yount Lee Oil Co.'s No. 6 School land is drilling around 4,900 feet. No. 10 Gulf land is at 3,380 feet. No. 4 State land is drilling around 1,350 feet. The Union Sulphur Co.'s No 1 Little is fishing at 1,840 feet. The Border Research Co.'s No. 1 in Mallard Bay is shut down at 2,790 feet. Surface casing has been set in No. 1 in Sabine Lake.

Calcasieu Parish — Sulphur Dome: Hintzse and others' No. 1 Binkenstein is at 4,345 feet. The Union Sulphur Co.'s No. 720 fee is deepening at 4,525 feet. The Pure Oil Co.'s No. 5 Sweet Lake, in the southeastern part of Cameron Parish, is drilling around 655 feet. Border Research Co.'s No. 1 in Calcasieu Lake is at 4,515 feet.

In the Stark Pool in that parish, the Gulf Refining Co 's No. 5 Lutcher Moore is drilling around 4,100 feet and No. 1 Industrial Lumber Co. is at 2,295 feet.

Iberia Parish — Eagle Point Dome: Gulf Refining Co.'s No. 2-Z State land is idle on account of high water, as is No. 1 Broussard at 3,195 feet. The Border Research Co.'s No. 1 Vermillion Bay is below 1,100 feet. Calcasieu Oil Co.'s No. 1-A Schwing is below 2,800 feet.

Evangeline Parish—Pine Prairie Dome: The Texas Company's No. 2 Guillory is drilling around 4,300 feet.

Assumption Parish — Union Sulphur Co.'s No. 1 Parish land is drilling below 1,185 feet.

Ascension Parish—Gulf Refining Co 's No. 1 United lands is rigged.

St. Martin Parish—Rycade Petroleum Corp.'s No. 1 Atchalafa cored a sand showing some oil at 3,782 to 3,790 feet. Bowie Oil & Gas Co.'s No. 1 Bernaud is drilling.

St. Mary Parish — Border Research Co.'s Nos. 1 in Grand Lake and 1 West Cote Blanche are both shut down on account of high water.

Jeff Davis Parish—F. I. Getty's No. 1 Lascassine is still fishing for tools stuck in the hole at 3,515 feet in sandy shale. Estropal Oil Co.'s No. 2 Duex is around 3,000 feet.

Spindletop Pool

The Walker Oil Co. abandoned No. 1 Quinn, on the southwest flank at Spindletop, at 5,400 feet after deepening. Interest centers in two tests now under way on the south end of the deep sand area and which should be completed during the coming week. These are the Magnolia Petroleum Co.'s No. 4 fee in which casing was set and is hardening around 5,200 feet. The second is the Gulf Production Co.'s No. 9 Oakwood, drilling around 5,100 feet and which was delayed on account of a fishing job. It offsets the Magnolia Co.'s test to the north. The Texas Company's No. 1 Garrick, one-half mile north of production, is drilling around 2,100 feet and the Rio Bravo Oil Co.'s No. 101 T. & N O., about the same distance north, is drilling around 4,010 feet. J. O. Davis' No. 1 Gladys, 1 miles west, is below 5,375 feet and the Hines Oil Co.'s No. 2 Roberts, one-half mile east, is around 3,875 feet. These complete the outside tests drilling.

Within defined limits, the Atlantic Oil Producing Co.'s No. 1 McLean is drilling around 4,815 feet. No. 8 McLean is at 4,900 feet. Nos. 10 and 11 are idle. The Sun Oil Co 's Nos. 2, 3 and 4 McLean are standing. No. 9 is at 5,230 feet, No. 10 at 3,415 feet and No. 11 is a derrick. No. 12 McLean is around 3,000 feet. No. 1 Price is drilling at 5,150 feet and No. 2 Price at 4,980 feet. The Rio Bravo Oil Co.'s No. 50 T. & N. O. is deepening at 4,465 feet. The Gulf Production Co.'s No. 7 Roche is at 4,985 feet and No 10 Oakwood is drilling around 4,975 feet.

The Magnolia Petroleum Co.'s No. 3 fee is drilling at 4,510 feet. No. 5 is a derrick. No. 2 fee, which came in two months ago flowing 2,500 bbls., is still heading 750 bbls. per day. The Hines Oil Co.'s No. 2 Gordon is drilling around 4,875 feet, with a derrick up for No. 3. Deep Sand Oil Co.'s No. 1 Rush is fishing at 3,350 feet. The Grayburg Oil Co 's No. 1 McLean is deepening at 4,715 feet. Lord-Mothner Oil Co.'s No. 2 Banks is deepening around 3,375 feet.

The Yount Lee Oil Co. has 14 rigs running in the deep sand section. The Stella Oil Co.'s No. 22 Swayne is rigging in the old cap rock section. Derricks are standing for Spindletop Western Oil Co.'s Nos. 1 and 2 Weed, Plummer Oil Co.'s No. 1 Quinn and Kennear Oil Co.'s No. 1 Gladys.

Belated Storm Reports

The windstorm that swept the Texas Coastal region Thursday morning, demolished 6 derricks at High Island, 8 at Humble, 3 at Goose Creek, 6 at Blue Ridge and 30 at Pierce Junction. Most of the latter were over pumping wells. Steel derricks on concrete foundations escaped.

MEXICAN FIELDS

(Continued from Page 55)

transport the new production to tide water.

The Mexican Petroleum wells in the Guzman-Tortuga, above referred to, finished as follows: No. 1, 2,133 feet, rated 10.000 bbls.; No. 2, 2,270 feet, rated 30,000 bbls.

Other Completions

The other wells of worth completed during the past week follow: Mexican Petroleum Co.'s No. 124 La Dicha, finished at 2,140 feet, rated 8,000 bbls.; its No. 134, same, finished for 5,000 bbls. at 2 142 feet; its No. 71 Chijol finished for 2 500 bbls. at 1,815 feet. In the Cacalilao sector, of the northern fields, Mexican Sinclair Petroleum Corp.'s No. 149, Lot 2, Cacalilao is good for 700 bbls. at 1,750 feet; its No. A-187, Lot 3, is good for 400 bbls. at 1,663 feet. India Oil Co.'s No. 3 Tobalo, in the Topila sector, is good, possibly, for 100 bbls. at 2,550 feet. The well will be tubed to make the production noted. East Coast Oil Co.'s No. 233 Halcon, Panuco, is good for 50 bbls. at 1,900 feet.

The Failures

The failures in the northern fields follow: International Petroleum Co.'s No. 298, Lot 4, Cacalilao is a dry hole at 2.258 feet. Mexican Sinclair Petroleum Corp.'s No. 146, Lot 1, Cacalilao, drilled into salt water at 2,040 feet; its No. A-22 Camolote, Panuco, is dry at 2,205 feet; its No. 14, Lot 2 W. Maguabes is a fluid failure at 1,944 feet. Transcontinental Petroleum Co.'s No. 282, Lot 2 Cacalilao drilled into salt water at 2,070 feet. Intermex Oil Co.'s No. 13, Lot 29 Altamira, is dry at 2,253 feet. Mexican Gulf Oil Co.'s No. 72 El Barco is dry at 2,200 feet. Mexican Petroleum Co.'s No. 60 Chijol, drilled into salt water at 1,880 feet; its No. A-24 La Pez is dry at 2,700 feet; its No. V-61 Caracol is a failure at 2.625 feet; its No. 2 Camino is dry at 2,685 feet. National Oil Co.'s No. 7, Lot 78 Quebrache, is a dry gasser at 2,773 feet. It may blow in some oil eventually.

In the south fields, Huasteca Petroleum Co.'s No. 7, Lot 163 Chinampa (Mexican Eagle property, joint agreement) drilled into salt water at 2.000 feet.

SOUTHWEST TEXAS

(Continued from Page 53)

Survey 335, Block 8, located 150 feet to SW cor., is drilling 125 feet with 10-inch casing set at 77 feet. T. P. Morgan's No. 1 de la Garza, Survey 335, Block 23, located 150 feet to SE cor., at 2,295-2,307 feet, is showing oil. Houston Oil Co.'s No. 1 "A" Barnsley, Survey 268, Block 14, located 450 feet to south line and 900 feet to east line, is drilling at 150 feet. Breen, Ingersoll and others' No. 1 Webster, NW NE NW, Survey 684, located 150 feet to NW cor., is moving on for test. Morgan-O'Hern & Seacord is moving on for No. 1 Webster, which is to be drilled deeper from 2,609 feet. Location is in the E half SE NW, Survey 684, at 150 feet to SE cor. Barnsley-Chicago Syndicate has spudded in No. 2 de la Garza, in Survey 335, Block 22, located 810 feet to south line and 150 feet to east line.

Mirando Valley Pool—Zapata

O. W. Killam is making location in Survey 74 for the No. 4 Hinnant. The Texas Company's No. 5 Jennings, Cerrito Blanco grant, 10,700 feet to southeast lines and 7,000 feet to southwest lines, at 1,461 feet, tested through Halliburton tester and showed 60 feet of oil, of same gravity as Mirando, being 25 gravity.

Rockdale Field—Milam

Coffield & Hale's No. 3 John Hicks, in city limits of Rockdale, offsetting No. 2, is drilling at 900 feet. Chicago Oil & Land Co.'s No. 6 Gambill, Gambill tract, offsetting No. 3, is drilling around 600 feet; No. 5 Gambill, 300 feet east of No. 1, has set casing ready to bring in. Coffield-Hale & Noack's No. 1 Vance, SW cor. of lease, is drilling at 700 feet. Noack Oil Co.'s No. 5 Seelkex, T. J. Chambers Survey, 300 feet SE cor. No. 2, is drilling at 502 feet. Coffield & Hale have cemented their test on the Alford tract, north of the city limits and three locations nearer the city than anything yet drilled and expect to bring the well in next week. Kent-Middleton's No. 1 wildcat, on the Henne, Meyer tract, south of the city limits, has set and cemented casing, ready to bring in.

Kingsville Field—Kleberg

Houston Oil Co.'s No. 1 Kivlin (formerly A. C. Erwin's) Lot 7, Section 50, located 660 feet to SE cor., is moving in rig to resume drilling at 710 feet. Carter-Walsh's No. 1 Flato, Lot 29, King land, is drilling at 1,567 feet. Humble Oil & Refining Co.'s No. 3 Kleberg, trustee, Lot 1, Section 40, located 150 feet to NW cor., is drilling at 2,807 feet in sand encountered at 2,804 feet; No. 1 Kleberg-trustee, Lot 8, Section 40, located 150 feet to NE cor., is drilling at 2,850 feet with hole reduced from 2,840 feet; No. 3 King, east of Cayo Del Grullo, is drilling at 1,600 feet; No. 3-A Dennett, NW cor. Lot 2, Section 39, is drilling at 900 feet; No. 1 Kivlin, NW cor. Lot 5, Section 39, is at 1,876 feet at which depth 10-inch casing is to be set.

Adams Gas Field—Medina

Temeco Oil Co.'s (Henderson & Holden) No. 1 Chandler, Survey 161, edge of field, is drilling at 870 feet. Western Gas & Fuel Co.-C. E. Lange's No. 5 Adams, Survey 72, located 1,600 feet north of No. 4, is drilling at 180 feet.

CANADIAN FIELDS

(Continued from Page 57)

staged nearly 25 years ago. In the Oil City or Pincher Creek Field a number of wells were drilled about 1903, the Rocky Mountain Development Co securing a reported flush production of 300 bbls. a day from one of its tests. The production failed to hold up and the field was ultimately abandoned. Exceptionally difficult drilling was experienced. The district is marked by numerous surface seepages of high grade oil, and the Kintla Lake structure will, it is thought, furnish more satisfactory structural conditions than existed in the original field of which it is believed to be an extension. Materials will be hauled from field offices to be established by the company at Columbia Falls.

Ontario Fields

In the Ontario fields, interest is being shown in the prospective development of further production in the old shallow pools by the Ranney oil mining process. Imperial Oil, Ltd. has for some time been engaged in preliminary work in the Bothwell Field, and is understood to hold certain options on the Petrolia and Oil Springs areas. These fields date back to the time of the earliest oil development, the first producing well on Black Creek in the Oil Springs Field having, it is claimed, been put down by J. H. Williams of Hamilton in 1857; while the early developments in Oil Springs and Petrolia synchronized with the first discoveries in Pennsylvania. With the exception of a few small shallow pools, the short-lived Tilbury Field and the present Trenton production in Dover, Ontario crude oil production has been practically limited to the three main fields at Petrolia, Oil Springs and Bothwell. The peak year for Ontario production was 1894, when the yield totaled 829,104 bbls. Since then there has been a steady decline in the older fields, until in 1926 only some 138,000 bbls. were produced. This decline is due to three factors: primarily, the exhaustion of the oil reserves; secondly, the comparative failure to develop new production; and, thirdly, the discontinuance of the government petroleum bounty in 1925, which made the continued operation of small pumping wells unremunerative.

It is claimed that the present system of production by wells is capable at a liberal estimate of securing only some 30 per cent of the crude oil from the sands; and that in the shallow pools, where the deepest sands are usually within 500 feet or less of the surface, further production by oil mining is both feasible and commercially remunerative Imperial Oil, Ltd. has done considerable diamond drilling in the Bothwell Field to determine the thickness of the producing sands and the potential returns; and if development is undertaken, the first operations will be in that field.

Camden Shallow Pool

In the Camden Shallow Pool, northwest of Thamesville, in Kent County, Ontario, Eagle Oil Co. No. 1 on the John A. Young farm has finished a shallow producer with an estimated flush production of 25 bbls. in 12 hours. The location is about 3,000 feet southwest of Vacuum Gas & Oil Co. No. 1. The outfit has been moved about 1,500 feet east of Eagle No. 1 and is now drilling Eagle No. 2. A pumping rig has been installed on Eagle No. 1 and the oil is being pumped and hauled to the siding at North Thamesville, for shipment to the Imperial Oil, Ltd. refinery at Sarnia. Ajax Oil & Gas Co., which has a couple of small pumpers, has contracted for three additional shallow tests on its acreage

In the Petrolia Field, a pumping rig on the F. Howlett & Sons property south of Petrolia was recently destroyed by fire, with estimated loss $1,500. The plant is being rebuilt.

Turner Valley Field

In the Turner Valley Field, southwest of Calgary, Vulcan Oils, Ltd.'s No. 1 LSD 11, Section 13-20-3w5, is making 125 bbls a day. A 2-inch pipe line is being laid to the Royalite Oil Co. plant, and a 2,000-bbl. tank is being erected for emergency storage. Vulcan No. 2, same LSD, is rigged up ready to spud in. Spooner Oils No. 1, LSD 12,, Section 13-20-3w5, is at 2.985 feet and fishing for lost casing.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, has resumed drilling at 3,620 feet with the diamond drill. The well has some wet gas production, apparently from the top of the Madison. Dalhousie No. 5, LSD 16, Section 30-19-2w5, is drilling at 3,800 feet and carrying 8¼-inch casing. Dalhousie No. 6, LSD 10, Section 13-20-3w5, is reported drilling below 2,810 feet, with 10-inch casing at 2,740 feet.

It is reported that a group of Chicago shareholders of Dalhousie Oil Co. are planning to organize a company and drill a further independent test in the Turner Valley Field as soon as Dalhousie No. 1 is brought in.

New McDougall-Segur Oil Co.'s No. 1, LSD 14, Section 12-20-3w5, is maintaining a production of about 75 bbls. a day of light crude. New McDougall Segur No. 2, same LSD, is working on derrick.

An injunction has been secured in behalf of Frank Ernest Starley, restraining the New McDougall-Segur Oil Co. from disposing of or drilling upon LSDs 11, 12 and 13, Section 12-20-3w5. The question involved is the right of the Dominion Government to reserve oil and gas and mineral rights on land homesteaded before 1908; and whether even if it were legal under the Dominion Land Act of 1886 to reserve mineral rights, the term "mineral rights" included oil and gas. Midwest Oil Co. is named a co-defendant. The latter company had cellar dug and derrick timbers hauled for a test in the N half LSD 13, Section 12-20-3w5, its sub-lease from the New McDougal-Segur calling for development work to commence by May 1. This work is now shut down pending the result of the litigation. The injunction does not affect the New McDougall-Segur drilling operations in LSD 14, Section 12-20-3w5.

Making 80 Bbls. of Naphtha

Illinois-Alberta Oil & Refining Co., LSD 14, Section 12-20-3w5, is reported making 80 to 90 bbls. a day of crude naphtha. Great West Oils No. 1, SE, Section 7-20-2w5, is pulling 8¼-inch casing to dislodge a socket jammed around 3,000 feet. It is reported that an attempt has been made to wreck the well by placing cut lengths of iron pipe in the hole. The test is down 5,475 feet.

McLeod Oil Co. No. 2, LSD 16, Section 1-20-3w5, is reported to have resumed drilling around 4,045 feet. The well is making approximately 50 bbls. a day crude naphtha on the separator. McLeod No. 3, same LSD is running 15-inch casing to 1,200 feet. The test got a small show of oil at this depth.

Calmont Oils, LSD 2, Section 1-20-3w5, is at 3,060 feet and waiting for 10 inch casing. Regent Oil Co., LSD 16, Section 1-20-3w5, is drilling below 1,200 feet. Okalta Oils, LSD 1, Section 1-20-3w5, is at 2,700 feet and fishing the last of the 12½-inch casing which dropped in the hole.

Stockmen Oils' No. 1, LSD 1-2, Section 27-20-3w5, is drilling below 3,920 feet, after striking a fourth show of gas, apparently in the Fernie shales, between 3,900 and 3,920 feet. Gas has been met at 1,670, at 2,400, at 3,580 and at 3,900 feet, the first flow being the largest, about 2,500,000 feet a day.

British Dominion Oil Corp., LSD 4, Section 5-20-2w5, is at 4,900 feet and working on casing. New Valley Oils, LSD 4, Section 6-21-2w5, is hauling coal preparatory to resuming drilling at 1,550 feet after the winter shutdown. Home Oil Co.'s No. 1, LSD 10, Section 19-20-2w5, is at 3,860 feet and drilling.

Neptune Oils, N half LSD 7, Section 9-19-2w5, is getting ready to spud in its No. 1 test. Actual work will start about May 15. A tentative location for Neptune No. 2 has been made in Section 19-19-4w5, though it may drill instead in Section 24-19-4w5.

Shareholders of Mill City Oils, Ltd. held their annual meeting at Calgary recently. Directors were elected as follows: President, John Braseth; vice president, Joseph Pashuk; directors, M. P. Boyd, B. Mills, P. Treanor. The company's financial statement showed cash and bank assets of $17,733.63, leases and other assets including shares in the British-Wainwright Oils, Ltd. being valued at $162,381.16. The company holds acreage in the Turner Valley Field, and in a number of potential fields in Alberta. Turner Valley acreage is in part being developed by Dutch-America Oils, Ltd. which has been working on a difficult fishing job on the old Record well, LSD 14, Section 4-19-2w5, at 4,327 feet. If the fishing job proves unsuccessful, the Dutch-American Oils will spud in a new test this spring.

The appeal court has dismissed the action of Jean Bilterijst against Mill City Oils, Ltd. in which he sought to recover possession of the lease on which the Dutch-American well is situated. Mr. Bilterijst secured a lease on which Belgo-Canadian Oils, Ltd. was to commence work by April 15, 1926; but after several extensions of time, the Mill City Oils again subleased the land into the interest later incorporated as Dutch-American Oils, Ltd.

Irish-Canadian Oils., Ltd. of Calgary is arranging for a drilling outfit to put down a test, probably in the Turner Valley Field. A tentative location is reported in LSD 12, Section 11-19-2w5. The Irish-Canadian acreage includes the site of the old Stokes-Stephens Oil Co. unfinished test, put down and abandoned in 1914. Directors of the company are: President, E. G. Pescod; vice president, Major C. C. Richards; secretary, E. J. Rossiter; directors, Julius Rickert, M. E.; C. T. Scott.

Moose Mountain

In the Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is reported drilling below 960 feet.

On the Morley Reserve, Gold Coin Oils, Ltd. is at 1,570 feet and drilling. In the Aldersyde district, south of Calgary, Ranchmen's Gas & Oil Co., LSD 16, Section 13-20-29w4, is drilling around 450 to 500 feet, after cementing the 20-inch casing to shut off surface water.

In southern Alberta, the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary has a location for a test for gas in a new field, 2½ miles west of Nemiskam, and about 7 miles southeast of Foremost. Canadian Western No. 8, is reported rigged up in the Foremost Field.

On the Milk River structure, Southern Alberta, Ainsworth Oils, Ltd. is drilling a series of shallow tests for structure in Township 3-15w4. H. M. B. Inglis, formerly field man for Eugene Coste & Co., is in charge. At Coutts, Urban Oils, Section 4-1-15w4, is being cleaned out for a test, at 3,420 feet.

In the Medicine Hat Field, the Roth Syndicate No. 2 deep test, Section 17-13-6w4, has resumed drilling, after cementing 6¾-inch casing on top of the limestone at 2,934 feet. This formation has an uplift of 87 feet compared with Roth No. 1 deep test in Section 31-12-5w4, and the drillers have missed the heavy water flow encountered on top of the limestone in No. 1.

Irma-Wainwright

In the Irma-Wainwright Field, east-central Alberta, Wainwright-Dome Oils, Ltd. has moved in a new standard outfit for their No. 2 test in LSD 5, Section 18-44-6w4. The rotary outfit on Wainwright Dome No. 1 is being rigged up for a test for National Exploration Co. in LSD 1, Section 30-45-6w4. Wainwright Petroleums, LSD 6, Section 30-45-6w4, is rebuilding derrick after the winter. The new Kling-Del Refinery at Wainwright is reported rapidly nearing completion.

In the Viking Gas Field, east of Edmonton, Northwestern Utilities Ltd. is working on the derrick for the first of two tests for gas to be drilled this season.

In the Pigeon Lake district, west of Wetaskiwin, the Globe Drilling Co., which some time ago took over the unfinished test of the Mutual Oil & Gas Co. in Section 4-14-2w5, is getting ready to resume drilling at 1,200 feet.

In the Ribstone-Blackfoot area, the Imperial-Ribstone No. 1, Section 5-45-1w4, looks like a failure. The well is drilling below 3,020 feet. The lime was entered at 2,060 feet and has been comparatively uniform ever since, the latest samples reported being about 99 per cent pure lime and very light in color. The cores closely resemble those from the Illinois-Alberta well in the Turner Valley; but no traces of oil or gas have been met in the limestone formation in the Imperial-Ribstone No. 1. The well is the deepest test yet drilled in the east-central Alberta area, in point of geology. It will probably be continued to the bottom of the deep lime.

In Saskatchewan

In Saskatchewan, Unity Valley Oil Co. No. 1, SE, Section 23-41-24w4, near Vera, Sask., has resumed drilling at 2,283 feet after the winter shutdown. Verwood Oil Co., Ltd. has 800 acres leased in the vicinity of Verwood, Sask. and will spud in No. 1 well about June 15. To the north, the Prudential Oil Co. of Moose Jaw, Sask., has acreage leased and is planning to put down a test. It is reported that the Queen City Oil Co. of Regina, which has production in the Montana fields, may drill a test in Saskatchewan this season, in addition to further drilling in Montana. Officers of the company elected at a recent annual meeting are: President, D. A. McNiven; vice president, F. Somerville; secretary-treasurer, J. E. Armstrong; directors, F. E. Poole, Dr. F. Whitmore, L. A. Paul, John Brodt, H. S. Allen and Dr. E. A. McCusker, all of Regina.

In Manitoba the Prairie Petroleum Co. Ltd. has leased territory in the vicinity of Rapid City and will put down a test. In the Grandview district, where the Irro Oil Co. well is being tested, Grandview Oils, Ltd. is reported to be rigging up a test near Irro.

In Alberta, in the Monarch area west of Olds, Majestic Oils, Ltd. of Calgary is planning to drill a test this season. The location is about 80 miles northwest of Calgary. It was tested by a number of companies at the time of the Calgary boom in 1924, but only the Monarch Oil Co. drilled to any depth. The Monarch test is reputed to have got a show of wet gas with traces of oil, but was eventually abandoned after drilling some 4,000 feet. None of the other tests at that time were carried to conclusive depth. Officers of the company are: President, Dr. Neil McPhatter; vice president, A. L. Stevens; secretary, William Georgeson; directors, Kenneth Moodie, W. G. Stinson, L. J. Anderson.

KANSAS FIELDS

(Continued from Page 46)

NE SE, Section 17-23-11, is spudding.

Theta Oil Co.'s No. 1 Pixlee, SW cor. NW SW, Section 9-22-10, drilled sand at 2,260-2,301 feet, plugged back to 2,296 feet and shot 15 quarts and is good for 100 bbls.

Empire Gas & Fuel Co.'s No. 1 Hind, SE cor. NW SW, Section 11-22-11, made 40 bbls. after it was shot with 80 quarts in sand at 1,856-94 feet. No. 16 Fromme, C E half NW, Section 14-22-11, was shot with 80 quarts in sand at 1,872-94 feet and produced 10 bbls. Crooker and others abandoned the location for No. 1 Schwab, SW cor. SE SW, Section 36-22-12. Empire Gas & Fuel Co.'s No. 36 Teter, SE cor. NW SE, Section 16-23-9, topped the sand at 2,370 feet was drilled to 2,436 feet and plugged back to 2,426 feet. The well was shot with 40 quarts and completed for 10 bbls. Ritchey & Moore's No. 8 Seeley, C SW SE, Section 5-23-11, made a 20-bbl well after a shot of 150 quarts in sand at 1,914-62 feet. Empire Gas & Fuel Co.'s No. 7 Edwards, SW cor. NW NE, Section 21-23-11, is a 35 bbl. well in sand at 1,894-1,935 feet where it was shot with 180 quarts. Connell Oil Co.'s No. 1 Short, SW cor. NE Section 34-23-11, is dry and abandoned at 2,080 feet. Simmons and others' No. 1 Wengler, NE cor. SW, Section 12-23-12, an old well deepened, is dry at 2,280 feet. McGinnis and Manhattan Oil Co.'s No. 2 Mack "A," SE cor. NW NE, Section 36-24-11, was shot with 100 quarts and completed for 75 bbls. in sand at

1,918-32 feet. Troxell and others' No. 1 Cox, SE cor. NW NW, Section 15-25-11, is dry at 1,973 feet. Magnolia Petroleum Co.'s No. 3 Klein, NE cor. Section 28-26-9, had sand at 2,266-99 feet and after a shot of 120 quarts it made 75 bbls. Empire Gas & Fuel Co.'s No. 3 Riley, NW cor. NE SW, Section 7-27-9, had shows of oil and gas at 2,450 feet and 2,757 feet and was abandoned at 2,758 feet.

Lyon County

McCullough and others' No. 1 H. Bradfield, NE cor. SW, Section 23-21-10, Lyon County, is dry and abandoned at 2,735 feet.

Marion County

Winters & Harwood and others' No. 1 Razineck, SW cor. NW, Section 22-17-4, Marion County, Lost Springs Pool, was deepened to the chat at 2,387-2,441 feet and made a 225-bbl. well.

Rice County

Independent Oil & Gas Co.'s No. 4 Walstein, SE cor. NE NW, Section 2-21-6w, Rice County, was completed for 110 bbls. in chat at 3,402-17 feet.

Sumner County

Roxana Petroleum Corp.'s No. 2 Sleigh location was made C S half NW SW, Section 25-31-2e, Sumner County. Location was made for No. 3 Wiles, SE cor. NW NE, Section 25-31-2, in the Churchill Pool. Location was also made for No. 5 Rutter, NE cor. SW NE, Section 25-31-2. No. 3 Taton, SE cor. SW NE NW, Section 36-31-2, is also a location.

Roxana Petroleum Corp 's No. 2 Wiles, CSL NW NE, Section 25-31-2, in the Churchill Pool, was shot with 60 quarts in sand at 1,846-1,905 feet and produced 650 bbls. No. 4 Rutter, CNL SW NE, Section 25-31-2, made 894 bbls. after it was shot with 80 quarts in sand at 1,847-1,909½ feet. No. 2 Shore "B," NE cor. SE SW NW, Section 25-31-2, topped the sand at 1,844 feet, drilled to 1,898 feet and was plugged back to 1,897 feet and shot with 60 quarts after which it made 450 bbls.

OKLAHOMA FIELDS

(Continued from Page 46)

County. The rig has also been moved out for No. 1 Grayson, NE cor. SE SW, Section 31-11-11.

Champlin Oil & Refining Co.'s No. 3 Washington, NE cor. SE, Section 15-11-11 was completed in the Wilcox sand 3,530-49 feet for 135 bbls.

Okmulgee County

X. K. Stout has the rig up for No. 5 Mayfield, CSL SW SW, Section 20-16-14, Okmulgee County, Wheeler & Empire Gas & Fuel Co.'s No. 1 Arnold, NE cor. NW SE, Section 3-15-12, an old well, is rigging up to deepen. Sidwell Drilling Co.'s No. 3 Lungford, NW cor SW, Section 4-14-11 had Dutcher sand 2,408-18 feet, the sand being dry, and is now shut down at 2,552 feet. T. R. Seburg's No. 1-A Tunnely, C NE SE, Section 32-12-12 is spudding.

Penrod & Thompson's No. 2 Brown, NW cor. SE NE, Section 1-14-11 has been abandoned at 3,223 feet with a hole full of water in the Turkey Mountain sand. Nowata Oil & Refining Co.'s No. 1-A Coleman, SW cor. NE, Section 28-14-11 found water in the Wilcox sand 3,160-95 feet and is abandoned. X-Ray Oil Co.'s No. 1-A Bud, NW cor. SE SE, Section 9-14-14 is good for 3,000,000 feet of gas from sand 1,845-1,901 feet. J. W. Roberts' No. 2 Carter, NE cor. SE, Section 10-15-14 is a 5-bbl. well producing from sand 1,465-98 feet. The well also had 4,000,000 feet of gas in sand 1,454-57 feet.

Osage County

George Parker has the rigs up for No. 1 NE cor. SW; No. 2 NW cor. NE SW; No. 3 NE cor. NW SW and No. 4 NW cor. SW, Section 28-26-6, Osage County, in the South end of the Burbank Pool. Barnsdall Oil Co.'s No. 1 CSL SW NE, Section 19-25-6 is drilling at 625 feet. Indian Territory Illuminating Oil Co.'s No. 361, SW cor. NW, Section 20-23-10, is drilling at 215 feet. Sand Springs Home made location for No. 103 SW cor. NE SW, Section 28-21-10.

Phillips Petroleum Co.'s No. 6 NE cor. SW SE, Section 7-27-6 in the Burbank Pool was shot with 130 quarts in the Burbank sand 2,950-97 feet and made a 75-bbl. well. Marland Oil Co.'s No. 2 SE cor., Section 27-25-9 is dry and abandoned at 73 feet. Tidal Osage Oil Co.'s No. 6 SW cor. NE SE, Section 1-23-8 was completed in the Wilcox sand 2,408-23 feet for 700 bbls. Sterling Oil Co.'s No. 10, CWL E half SE, Section 1-22-9 is swabbing 25 bbls. from the Burgess sand 2,050-54 feet. Ray Branstetter's No. 1-A NE cor. SW NW, Section 26-22-11 went through the Bartlesville and Burgess sands and was abandoned at 1,772 feet. Barnsdall Oil Co.'s No. 5 NE cor. NW NW, Section 2-21-8 was shot with 20 quarts in the Bartlesville sand 2,512-28 feet and made 10 bbls.

Payne County

Payne County Pipe Line Co. made location for No. 1 Knots, NE cor. SE SE, Section 7-18-4, Payne County.

Magnolia Petroleum Co.'s No. 2 Welker, NE cor. SW, Section 8-19-5 was drilled to 3,480 feet and plugged back to sand 3,320-57 feet and shot with 80 quarts with no results and the well was abandoned.

Pawnee County

Devonian Oil Co.'s No. 4 Dobson, NE cor. SE NW, Section 35-22-6, Pawnee County, had sand from 2,662 feet to 2,673 feet, was shot with 20 quarts and made 15 bbls. Ed Reese and others' No. 1-A School land, NW cor. SE, Section 16-21-7 is pumping 10 bbls. from sand 2,235-55 feet.

Tulsa County

Holmes and others' No. 1 Chisholm, SW cor. NE, Section 20-19-10, Tulsa County, is dry and abandoned in the Hominy sand 2,818-38 feet. No. 2 Henry, NW cor. SE, Section 22-19-10 is a dry hole in the Red Fork sand 1,989-2,017 feet. Glidden Oil Corp.'s No. 2 S. Fife, NE cor. SE NE SW, Section 15-19-11 is producing 600 bbls. from the Hominy sand 2,080-2,152 feet. C. G. Tibbens' No. 1 Gregory, SE cor. SW, Section 14-18-12 was completed for 2,000,000 feet of gas in the Perryman sand 1,038-42 feet. E. Cornelius' No. 1-A Smith, SW cor. SE SE, Section 7-17-13 is dry and abandoned in the Wilcox sand 2,100-11 feet. McCready Oil & Gas Co.'s No. 1 N. Call, CWL SE SW, Section 34-17-13 had no sand and has been abandoned at 1,893 feet.

Beckham County

C. & H. Petroleum Co.'s No. 1 Barnes, NW cor. NE, Section 32-9-22w, Beckham County, is to be deepened from 600 feet, and is now being cleaned out at 300 feet.

Caddo County

Belle Hudlund's No. 1 fee, SE cor. NE NE, Section 11-5-9w, Caddo County, had sand 2,417-23 feet from which it is producing 30 bbls. Magnolia Petroleum Co.'s No. 5 Lacky, NE cor. SE NW NW, Section 11-5-9w, drilled sand 2,478-92 feet and went on to total depth of 2,505 feet and completed for 10 bbls.

Carter County

Roxana Petroleum Co. is building the rig for No. 1 Sarasota, SE cor., Section 13-4s-2w, Carter County. L. E. Trout made location for No. 1 L. Noble, C SE NW, Section 22-3s-1e. Magnolia Petroleum Co. had the rig up for No. 8 Swartz, NW cor. NE, Section 26-2s-3w. Atlantic Oil Producing Co.'s No. 3 Liles, NW cor NE NW, Section 11-2s-3w is drilling at 200 feet. Magnolia Petroleum Co.'s No. 1 Akers location was made SE cor. NE, Section 30-1s-3w. Humble Oil & Refining Co. built the rig for No. 3 Jennings, NW cor. SW SE, Section 28-1s-3w. Magnolia Petroleum Co. has the rig up for No. 7 W. Hardin, NW cor. SW, Section 19-1s-3w. Humble Oil & Refining Co. is erecting the rig for No. 14 Jordan, NE cor. SW NW, Section 19-1s-3w.

Magnolia Petroleum Co.'s No. 3 A. Carpenter, NE cor. NW NE, Section 3-2s-3w lost the tools and was abandoned at 3,013 feet. Humble Oil & Refining Co.'s No. 4 Calvery, SE cor. SW SW, Section 2-2s-3w was completed for 305 bbls., producing from broken sands from 3,244 feet to 3,355 feet. The total depth is 3,400 feet.

Comanche County

Westheimer & Daube abandoned the location for No. 3 Watson, NE cor., Section 24-2-10w, Comanche County.

Garvin County

Magnolia Petroleum Co.'s No. 26 Cowan, SE cor NW, Section 15-1-3w, Garvin County, had sand 1,485-90 feet, drilled to 1,695 feet and plugged back to 1,490 feet and is making 1,500,000 feet of gas.

Grady County

Gypsy Oil Co. has the rig built for No. 5 Keyser, SW cor. NE SW, Section 16-3-5w, Grady County. Noble & Westerfelt has the timbers on the ground to build the rig for No. 1 P. Smith, NW cor., Section 24-5-8w.

Carter Oil Co.'s No. 1 C. Costello, SE cor., Section 21-3-5w is making 17 bbls. from sand 2,111-17 feet. Gypsy Oil Co.'s No. 4 Kayser, NW cor. SE SW, Section 16-3-5w was completed for 250 bbls. from sand 1,706-55 feet.

Hughes County

Transcontinental Oil Co. is rigging No. 7 Ogle, NW cor. NE NE, Section 4-9-9, Hughes County, to deepen from 3,328 feet. Burk-Greis Oil Co. made location for No. 1 McGrit, NE cor. NW NE, Section 15-8-9. Phillips Petroleum Co. made location for No. 1 Irving, SW cor. SE SW, Section 17-8-10. Independent Oil & Gas Co. made location for No. 5 Irving, SE cor., Section 18-8-10.

Transcontinental Oil Co. and Independent Oil Co.'s No. 11 Harjo, SE cor. SW, Section 26-9-9 an old well deepened, had water at 3,360 feet and was abandoned at 3,395 feet in shale. Roxana Petroleum Corp.'s No. 1 Powell "B," NW cor NE NE, Section 35-9-9 is dry and abandoned at 4,045 feet. The Producers & Refiners Corp.'s No. 4 Long, SW cor. NW, Section 4-7-8 is a dry hole in the Wilcox sand 4,142-69 feet.

Jefferson County

Humble Oil & Refining Co. has the rig up and some tools in for No. 1 Seay, SW cor. SE SE, Section 9-7s-5w, Jefferson County.

Magnolia Petroleum Co.'s No. 1 Casey Smith, SE cor. NE NW, Section 24-7s-6w is making 13,000,000 feet of gas from sand 728-50 feet.

Love County

Westheimer's No. 1 fee, NE cor NW SE, Section 28-6s-2e, showed oil in sand 4,002-4,025 feet which was shot with 60 quarts without results and has been abandoned at 4,403 feet.

Marshall County

Gault-Brown Oil Co.'s No. 1 Castle, SE cor. NW NW, Section 35-5s-3e, Marshall County, has been abandoned at 3,814 feet.

Muskogee County

W. H. Trapp and others are rigging up a machine for No. 1 S. Scott, SW cor. SE SW, Section 11-14-18, Muskogee County, Jolly-Ogg Oil Co.'s No. 1 Lewis, NE cor. SW NE, Section 17-15-17 an old well is drilling deeper at 1,445 feet. F. E. Webb and others' No. 4 Asbury, NW cor. SE SW NE, Section 20-16-15 is drilling at 1,000 feet.

Jolly-Ogg Oil Co.'s No. 4 G. Holden, SE cor. NE NW, Section 9-14-18 has been abandoned, no hole being made. W. J. Metzger and others' No. 3 McIntosh, CSL N half NE NE, Section 24-14-17 is dry in the Timber Ridge sand 1,752-58 feet. Peterson and others' No. 6 James, CNL SE SE, Section 18-14-17, has been abandoned at 600 feet. D. C. Lampton's No. 1 Carlina, NE cor. NW SW, Section 9-15-18 drilled to 1,349 feet and is making 2,000,000 feet of gas from sands 720-29 and 733-68 feet. H. E. Williams and others' No. 7 R. Manuel, CEL NW NW, Section 17-15-17 is a 35-bbl. well in sand 1,272-86 feet.

Murray County

Tompson Oil Corp.'s rig is up for No. 1 Freeman, SE cor., Section 27-1s-2e, Murray County.

Pittsburg County

Quinton Spelter Co.'s No. 1 Stringer, SW cor. NW, Section 21-7-17, Pittsburg County, is making 2,000,000 feet of gas after being shot with 100 quarts in sand 2,490-2,555 feet.

Pontotoc County

Lloyd and others' No. 1 Staritt, SE cor. NE, Section 23-4-7, Pontotoc County, was completed for 12,000,000 feet of gas from sand 1,043-46 feet and shut in.

Murphy Oil Co.'s No. 3 Payne, SW cor. SE, Section 2-1-5w an old well being deepened, is now drilling at 1,530 feet.

Comanche Oil & Gas Co.'s No. 1 Wilson, NE cor. NW NE, Section 29-2-7w has been abandoned at 1,670 feet. Magnolia Petroleum Co.'s No. 1 V. Payne, NE cor. SE, Section 31-1-5w had sand 1,790-94 feet and is making 20 bbls. Cruce Oil Co.'s No. 1 M. Frensley, SE cor. SW NE, Section 12-1-6w, is making 10 bbls. from sands 965-73 feet and 1,006-09 feet.

Tillman County

P. C. Dean and others have built the rig for No. 1 Hollopath, NE cor., Section 6-5s-14w, Tillman County.

Wagoner County

G. S. Wilson's No. 1 S. Lunnon, NW cor. NE NW, Section 14-16-16, Wagoner County, was completed for 750,000 feet of gas in sand 800-18 feet feet. W. C. Newman Corp.'s No. 3 Bruner, SE cor. NW NW, Section 18-17-17 is making 500,000 feet of gas from sand 1,151-67 feet.

Poor Oil Man Pays More for Water Than He Gets for His Oil

"Is there a law agin them oil men makin' good money in times like these?" asked the chairman of the crackerbarrel congress at Cranberry Corners, Okla. "If there ain't, there oughter be."

"Wrong again," said Sawdust Sam. "Them oil men desarves a heap o' sympathy right now, and ef they don't get some help they might not be able to figure on leasin' that hundred and sixty of yours next summer."

"Haw! haw!" roared the chairman. "I been a-hearin' that same yarn for years, but I notice when the lease runs out they always comes back and renews it."

"So they have, so they have," retorted Sam, "but it ain't like it uster be, cause now a heap o' them oil men's afigurin' on goin' into the water business, and quittin' the oils."

"But what are they agoin' to do with their stations where they put out the gasoline?" queried the chairman.

"Well, I kin see that you fellows ain't a' bin paying much mind to the oil prices," said Sam, "cause if you were you'da seen that there's more money in water than there is in oil. Good drinkin' water costs you 5 cents a gallon anywhere 'roun' here, but if you figure what them oil men is gettin' for their crude oil you'll see they only get 3 cents a gallon, so they're goin' into the water business."

GULF COAST MARKETS REPORTED BADLY MIXED

HOUSTON, Tex., Apr. 25.—Refiners report the demand for lubricating grades made from Gulf Coast crudes is picking up. The inquiries come from all sections of the country. Quotations on pales, filtered and red oils are unchanged. The movement, however, is reported as satisfactory for the season. One refinery manager said his plant had sold to its capacity on pales and reds at the present quotations. Gas oil is reported at 4½ to 4¾ cents. Fuel oil prices remain unchanged. Since the advent of the cracking processes, practically all the low grade crudes that formerly went into the fuel oil market direct, are now run through stills.

The situation among the Coastal plants is badly mixed. Managers of the big refining plants say they are overstocked, not only on gasoline, but lubricating stocks as well. The small refineries talk optimistically and report a good demand for lubricating grades from Coastal crudes.

OPEN SALES OFFICE

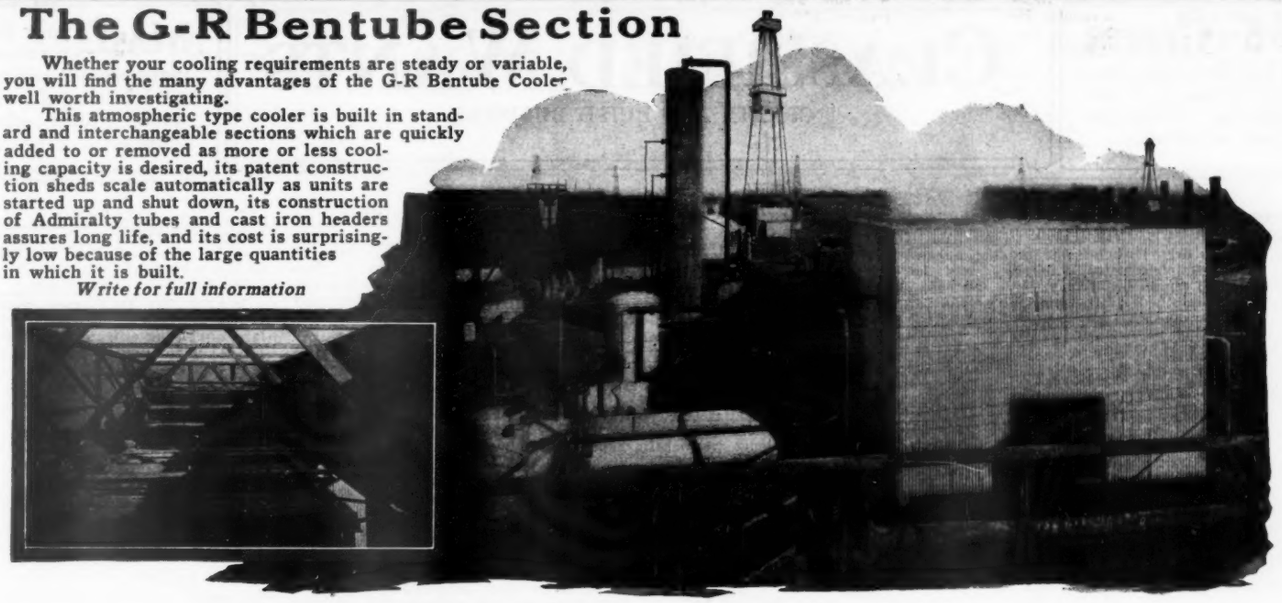
Paul Arbon & Co. of Tulsa, Okla., manufacturers of oil well tools, have opened a sales office at 708 Petroleum Bldg., Tulsa, with J. R. Certain, sales manager, in charge.

The G-R Bentube Section

Whether your cooling requirements are steady or variable, you will find the many advantages of the G-R Bentube Cooler well worth investigating.

This atmospheric type cooler is built in standard and interchangeable sections which are quickly added to or removed as more or less cooling capacity is desired, its patent construction sheds scale automatically as units are started up and shut down, its construction of Admiralty tubes and cast iron headers assures long life, and its cost is surprisingly low because of the large quantities in which it is built.

Write for full information



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The MEISTER VALVE

(PATENTED JUNE 29, 1916)

Meister Valves are made of vanadium steel and weigh less than two ounces each. On account of their lightness they are absolutely noiseless and will never require grinding.

Seats are made separate from cylinder and are readily accessible for cleaning or repairing, without removing a single connection. As they are free from troublesome springs, they can be used in any position. Here are some features of Meister Valves.

1—Improved mechanical and volumetric efficiency over the old style poppet valve.

2—Elimination of lubrication of any kind for the valve itself.

3—Silent operation at the highest piston speeds.

4—Valves never require regrinding.

5—Elimination of troublesome springs.

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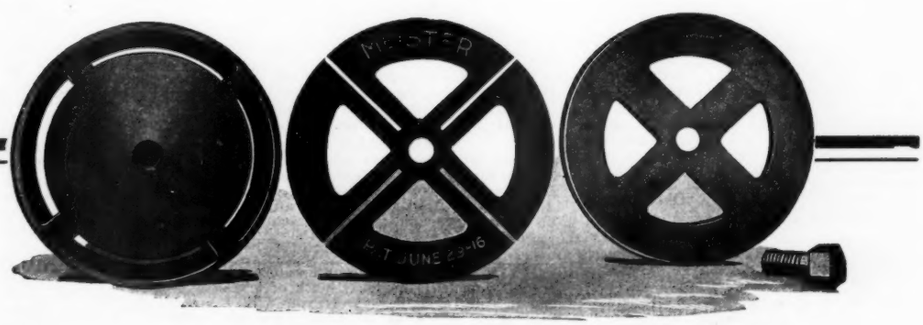

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MAIL your advertisement now. It will be published next week. Cash with order.

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AIR COMPRESSOR FOR SALE

Direct motor driven Ingersoll-Rand air compressor, complete with 10 horsepower 220 volt, 3 phase, 60 cycle motor. This is a self-contained unit, mounted on one base and suitable for furnishing air for riveting hammer or similar tools. Machine is brand new and very latest model.

OZARK CHEMICAL COMPANY
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FOR SALE—5 Deane Triplex Pumps. 5 by 8.

1 No. 2, 1 No. 5, 1 No. 6, 1 No. 7, 1 No. 10, 1 No. 11 Sweetland Oil Filters.

Two 10-inch S. Roturbo Centrifugal Pumps. Six 10-inch S. Centrifugal Pumps. Steam Turbine.

Storage Tanks, all sizes. Send for list.

Send us your inquiries. We buy your surplus equipment.

CONSOLIDATED PRODUCTS CO.
15 Park Row, N. Y. C. Barclay 0603.

FOR SALE—Cheap, one 4-cylinder St. Mary's Diesel Oil Engine; total rated horsepower 152½. Arch Rollow, Wynnewood, Okla.

USED LINE PIPE FOR SALE

20,000 ft. 2 inch line 11c.
15,000 ft. 2½ inch 11½ thread 12c.
7,000 ft. 3 inch line 19c.
7,000 ft. 4 inch line 30c.

Prices f.o.b. car, Corsicana, Texas.
Acme Pipe & Supply Co. Corsicana, Tex.

USED LINE PIPE AND CASING FOR SALE

7—25-h.p. used gas engines.
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15,000 ft. 5⅜-in. used casing.
15,000 ft. 6⅝-in. used casing.
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75,000 ft. 3-in. used line pipe.
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For immediate shipment from our Texas yards.

KEYSTONE PIPE & SUPPLY CO.
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STANDARD RIG FOR SALE

New 120-foot standard rig, complete; has just drilled one well; good 6-inch Marion rig irons; set Marion iron bull wheels; set Lucy calf wheels; 65 H. P. Lucy boiler; new style Ajax engine complete; O. W. S. engine; two 250-bbl. steel tanks; underreamers; elevators, gas burners; belts; casing line; crown block; casing clamps and considerable other drilling equipment; all in first-class condition; practically as good as new and offered at a great discount. Write R. S. Randerson or H. L. Berry, 318 Braniff Building, Oklahoma City, Okla. Telephone Maple 0778.

FOR SALE

Two (2) Rathbun-Jones three-cylinder vertical gas engines, 12¾x15-inch, direct connected to 75-kilowatt, 250-volt direct current generator, with five panel slate switchboard, board equipment, including two watt hour meters, volt meters and ammeters, generator switches and distribution panel.

All equipment in first-class condition, now in operation. Must move in 30 days.

THE SMITH GAS ENGINEERING CO.
Dayton, Ohio.

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2—Complete Cracking Units (towers, condensers, high pressure safety valves, tankage). Also, 3—500 bbl. stills good condition; 4 towers ¼"x4'-15', 20 steam pumps various sizes; good condition, other misc. refinery equipment. For complete list and prices write Box 1088, Little Rock, Ark.

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SIX-INCH Lucy Special Rotary complete, nearly new; 2,300 feet 4-inch drill stem; lot of bits, extra rotary parts, etc. $4,000. 218 feet new 20-inch casing, $900. S. H. Weber, 310 Colo., Bldg., Denver, Colo.

FOR SALE—Two new four-room sectional houses; 25 per cent discount for quick sale. Foster, 115 South Boston, Tulsa, Okla. Phone 3-1581.

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Worthy of your confidence. General machine work. 1416 Walnut, Kansas City, Mo. Phone Harrison 7660.

MACHINE WORK — Foundry products; let us figure on the manufacture of your equipment. First-class service. Reasonable prices. Prompt deliveries. Large establishment.

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HUMBLE WELL in new field, Cherokee County, Texas, at six feet in the sand making thirty-eight hundred barrels through quarter inch choke; this well drilled in would probably make twenty thousand barrels. We have fifteen hundred acres on next dome six miles west; want small bonus and well. H. F. Goss, First Natl. Bldg., Chickasha, Okla. P. O. Box 572.

HAVE a Texas oil corporation charter; no longer need and will transfer to new company on extremely attractive basis. Address Lawyer, P. O. Box 479, Dallas, Texas.

FOR SALE—Fifty-room hotel in the finest shallow oil field in Texas; an ideal place for large family of people wanting to enter the shallow field; 14 miles west of Cisco on Bankhead highway; starting to drill for deeper oil; will give possession at once; party's health the reason for selling. If interested, write M. Guyton, Putnam, Texas.

FINANCE your project with stock bonded. Quickest and most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

FOR Complimentary copy of "The Promoters' Handbook" a leaflet on financing, writer to Amster Leonard, 617 Central Ave., East Orange, N. J.

FOR SALE

Have lease contracts on 4,000 acres, Joplin, Picher, Lead & Zinc District. Low Royalty. No Money required except for development. Will assign all or any part on liberal development requirements.

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Box 365, Columbus, Kan.

HAVE YOU a rig to rent for acreage, or will you drill a wildcat block of acreage in southwest Texas? If you will, I have what you want, with good geology and well located. Address W. S. Poole, Beeville, Tex.

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400-ACRE FARM

One-third cleared, rich, productive. Some good timber. Make wonderful stock farm or gentlemen's game preserve. Seventy-five miles St. Louis, night's run Chicago. Frisco and Illinois Central through property. Worth many times in few years. Aged owner settling affairs, therefore hardly any cash required, 10 years to pay balance. Iowen, Box 116, Mt. Vernon, Ill.

BUSINESS OPPORTUNITY

200-ACRE

Indian river dairy farm, near new Pet milk condensery at Neosho, Mo. Springs in pasture, crops all out, three-quarter-mile lake front, fishing, boating and bathing, electric lights and other conveniences. Priced to sell. Terms. Owner, Box 113, Goodman, Mo.

WILL GIVE interest in 800-acre lease in Wyoming, on good geology, for proper drill test, have options on large adjoining acreage; also have lease on 120 acres near Farmington, N. M., close to pipe line, on same terms. P. O. Drawer 6, San Springs, Okla.

PLAY SAFE

For Sale—The controlling interest in a successful Furniture Business, doing over $100,000 net yearly. Located in a beautiful Mid-West Metropolitan city, close to one-half million population. This store is over 25 years old and the business has a good personell and is well organized, so that knowing this business thoroughly would not be so essential. A wonderful opportunity for a man with 75 to 100 thousand to make a safe investment with a sure profit. This will bear the strictest investigation. Write to

BOX B-813
The Oil and Gas Journal, Tulsa, Okla.

CAPITAL — Experienced dependable broker with following will give personal attention to financing worthwhile proposition. R. W., 810 Broad St., Newark, N. J.

FOR SALE or rent. Elegantly furnished cabin, large sleeping porches, piano, sun parlor, fireplace, telephone, fine spring water, situated in forest of pines, over wonderful roads; Cody Park, near clubhouse, 45 minutes from Denver. Owner, 670 Grant St., Denver, Colo.

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WANTED

ROYALTIES WANTED—Producing, offset or under drilling wells. Give description, price, age and full particulars. Box 1359, Tulsa, Okla.

WANT to buy producing royalty. Oklahoma or Texas preferred. Must stand strict investigation and be real bargain. $25,000 to $35,000. A. H. Livingston, Box 1214, Muskogee, Okla.

WANTED—Drilling contractor to drill on twenty-acre lease, one-half mile west of Wilcox production in the Earlsboro Field. Address Box 255, Earlsboro, Okla.

WANTED—WET GAS CONTRACTS

Gasoline producer will give interest in plant or overriding royalty. Give volume and gasoline content. Wm. H. Allen, contract dept., 1215 Detwiler Bldg., Los Angeles, Calif.

ROYALTIES WANTED—Producing-offset, and under drilling wells; also producing properties and leases. J. Ben Brown, 115 North Vancouver St., Tulsa.

NATURAL GASOLINE

WE WANT wet natural gas on royalty or partnership basis.

WE HAVE complete equipment for a 5,000-10,000-gal. natural gasoline plant.

Write BOX B-820
The Oil and Gas Journal, Tulsa, Okla.

WANTED—Leases, royalties and production to sell. Waltman, Barnsdall, Ok.

DRILLER WANTED to drill well 3,500 ft. or deeper in Sec. 1, Twp. 3n, R. 5w. State cost, condition and time required. J. Mazur, 1931 Evergreen Ave., Chicago, Ill.

SOMEONE to promote or develop an oil tract in McDonough County, Illinois, of 240 acres; 505 feet to oil sand and 50 rods from oil well. N. W. Wear, 510 Bellingham National Bank Bldg., Bellingham, Wash.

WANTED

WILL BUY producing royalties and close-in non-producing royalties from owners giving full details and right price. P. O. Box 1440, Tulsa, Okla.

WANT TO BUY good natural gas property worth at least one million dollars, supplying cities or industrial enterprises; have clients who will finance gas pipe line up to five million dollars. Box 493, Enid, Okla.

WANTED—Lease in shallow production, 5 to 25 bbls. Roy Sullivan, 212 S. Broadway, Portland, Oregon.

WANTED

Capital to complete well now down 1,735 feet, Yuma, Arizona. Wonderful showing. Leases on 7,000 acres. No. 5 rotary rig on ground. One-half interest to party financing to 3,000 feet if necessary. Shallow water well close by produced 50 barrels oil. Wonderful gamble.

B. W. SINCLAIR
221 Commonwealth Bldg.
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WANTED—Shallow structure in Mid-Continent Field; large acreage; without bonus; for drilling test. Geological report and map necessary. Send details. Shallow Sands Oil Producers Syndicate, 404 Empire Bldg., Denver, Colo.

POSITION WANTED

WE HAVE available a man who can take charge of your meter and regulator repairs. This man is a thorough mechanic; has had charge of our provers, service department and meter assembly. It has been our practice for some time to train men for the gas companies, and this man is ready to save some gas company a lot of money on heir repair and maintenance costs. For further information address Mr. L. A. Dixon, Pittsburgh Equitable Meter Co., 400 Lexington Avenue. Pittsburgh, Pa.

ACCOUNTANT - COMPTROLLER. Have an aggregate of 9 years' experience (both public and private) in oil accounting; university trained; thorough technician. Am at present engaged, but desire wider field with sound organization. Box B-826, The Oil and Gas Journal, Tulsa, Okla.

CIVIL ENGR. 5 years experience in farm and pipe line surveys, large tank grades, inventory work, etc. Desires position with producer or pipe line company. Go anywhere. Best references. Box B-810, The Oil and Gas Journal, Tulsa, Okla.

REFINERY accountant, age 30, 12 years' experience in refining; formerly superintendent of skimming plant; for the last five years in direct charge all refinery accounting for large corporation. Box B-815, The Oil and Gas Journal, Tulsa, Okla.

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35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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COMPETENT CONSTRUCTION engineer with university education and 10 years oil refinery construction experience erecting modern refinery equipment, pipe still, cracking plants, lubricating plants, etc. Foreign work preferred. Box B-792, The Oil and Gas Journal. Tulsa, Okla.

EXPERIENCED oil country machinists. Joint Turner. Available immediately. Box B 823, The Oil and Gas Journal, Tulsa, Okla.

GASOLINE production superintendent, six years' experience gasoline plant operation and research work desires position as operating or gasoline plant superinetndent. Location no object. University graduate, age 28, single. Box B-825, The Oil and Gas Journal, Tulsa, Okla.

YOUNG MAN—Single, familiar with drilling tools and equipment, go any place. Available immediately. Box B-824, The Oil and Gas Journal Tulsa, Okla.

REFINERY fitter, 15 years' experience, desires position as foreman or fitter, references. Address Box B-821, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

AMERICAN ENGINEERS Service, Pittsburgh, Pa., requires for employment proposals. Graduate Mechanical Engineers; Steam and Chemical maintenance engineers; Designing Draftsmen; Piping; Structures; Power equipment; Chemist; Testers; Accountants; Civil Engineers and Oil Geologists. Free to employers.

WANTED—Pipe salesman. A man who is familiar with merchants, pipe, line pipe and casing. Box B 822, The Oil and Gas Journal, Tulsa, Okla.

ROYALTIES—PRODUCTION

CONTROL offset royalty to 3,500-bbl. producer, 2 wells on sand, also own producing oil and gas royalties in Oklahoma fields. Only real purchasers wanted. P. O. Box 825, Tulsa, Okla.

FOR SALE—Oil royalty on 320 acres land, four miles north Phillips discovery well in Jones County. Also lease and royalty on 300 acres in Smith County, close to Steen Saline, where the Gulf people have large holdings. T. L. Odom, Tyler, Tex.

ROYALTY and lease bargains; some close-up; Logan, Cleveland, Pontotoc, Oklahoma, Canadian, Kingfisher Counties. Also Brewster County, Tex., land in fee, unleased, $1.75 per acre. Woldridge, 211 W. 10th, Okla. City, Okla.

J. F. MARION OIL COMPANY
Magnolia Building
Dallas, Texas
Buys and sells Texas Oil Leases and Royalties.

WELL LOCATED royalties in Pecos, Upton, Terrell, Culberson, Jeff. Davis, Blanco, Presidio and Gaines, cheap. E. Everetts, 901 Buchanan St., Amarillo, Tex.

PECOS COUNTY ROYALTY—Sec. 49, Blk. 11, H. & G. N. Ry Co., 618 acres, 2 miles west of where Orient Ry. crosses Pecos River; lease owned by The California Co.; will sell 1/64th for $1 acre; reasonable terms. Owner, L. W. Stieren, 815 Alamo Bank Bldg., San Antonio, Tex.

25,000 ACRES goes to highest bidder on acreage for well or cash. A-1 geology, conveniences. Potawatomie County, Kansas. Roy Shaw, 411 Leavenworth, Manhattan, Kans.

OPERATORS—Will block 5 yr. form 88 leases Montgomery County, Mississippi, 2 yrs. free, 25c rent next 3 yrs. at 5c acre. Brooks, 282 S. Front St., Memphis, Tenn.

LEASES—PRODUCTION

FOR SALE—Five thousand acres of land blocked. Smith & Shadle, Boonsville, Texas.

NEW MEXICO, Lea County, oil, gas lease, 40 acre tract, twenty dollars per acre. For particulars, Albert La Mott, 91 West Jersey St., Elizabeth, N. J.

ATTENTION
LAND AND LEASE OWNERS

Will consider wildcat drilling block of ten thousand acres or more for a test well.

In submitting acreage for consideration, same must be accompanied by contour map, geological report or geological map.

Block of acreage to receive consideration must be as nearly solid as possible, must have some geology and may be located in Texas, Oklahoma, South Central Kansas or Eastern Central New Mexico.
J. W. ALFORD & CO.
Lincoln Bldg.
Los Angeles, Calif.

FOR SALE—Good oil lease of several hundred acres, very near Walden well of Jackson County, Colorado. Only parties with reliable references considered. Box B-804, The Oil and Gas Journal, Tulsa, Okla.

HAVE SEVERAL pieces of flush and settled production for sale in Oklahoma and Wichita Falls districts. Prices reasonable and terms can be arranged if necessary. P. O. Box 1144, Dallas, Tex.

NEW OIL FIELD. Shallow drilling, one well standing full of oil, one well now drilling, several new well locations made. Will sell a few leases at $3 to $5 per acre. P. O. Box 96, Bossier City, La.

DRILLING BLOCK secured on approved acreage and well supervised; no bonus; we keep some acreage as fee. Nicolle, Petroleum Geologists and Operators, Box 1720, Fort Worth, Tex.

OMER MCKOWN AND SON
Maud, Oklahoma

Buy, sell and broker leases and royalty southeast Seminole and south Pottawatomie Counties, Okla.

McKINLEY COUNTY LEASES—State leases and government permits in the vicinity of the new Midwest Company's rike for sale or drilling contract. Ten new wells projected. Staplin & Staplin, Santa Fe, N. M.

PROVEN LOCATIONS — Guarantee never fails, on oil or gas, wildcatting our specialty, depth and sands, for particulars, write Redmon & Bulk, 312 Cherokee, Humboldt, Kans.

OIL IN FLORIDA?

640-acre drilling blocks available to responsible companies or individuals with tools ready to drill on the Ringling tract in Sarasota County in close proximity to Salt Springs and well No. 1 of the Associated Oil & Gas Co., now drilling. The geology has been favorably reported on by geologists and experienced oil men. For other information, write
KENNETH HAUER
Sarasota, Fla.

BEST GAS market in the country, 1,000 acres blocked out, proven field, shallow drilling, 35-cent market for gas. Will take royalty interest or cash, will stand closest investigation. Inquire of D. F. Troup, 719 Wick Avenue, Ashland, Ohio.

RATLIFF & CO.
Oil leases and royalties 630 and 631 Security Bldg. Phone W. 7881, Oklahoma City, Okla.

WE OFFER an unusually attractive and unique proposition to purchase royalty interests. Superior Oil Royalty Co. Lubbock, Tex.

FOR LEASE—80 acres near Sunny Side, Idaho. It is claimed a large anticline comes through where this land is. Wm. Burger, 4761 Milentz Ave., St. Louis, Mo.

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Chicago Market Shows No Change

Jobbers Report Good Gallonage for Season But Receive Enough Supplies on Contracts. Fuel Oil Is Quiet But Little More Firm

By J. B. Waldo

CHICAGO, Apr. 25. — The gasoline spot market was quiet Monday showing no change in either prices or sales from the preceding week. Jobbers continue to report good gallonage for the season but are receiving so great a part of their supplies on contracts that little buying in the spot market follows from this consumption. Dealers generally claim that they have fair stocks and are deliberate about their buying and try hard to get the lowest going price. Generally the price range for U. S. Motor gasoline is from 6¼ to 6½ cents with the larger part of the sales made at below the higher range. Some dealers claim that they can buy at less, one large dealer reporting the purchase of U. S. Motor gasoline at 6⅛ cents.

A dealer in a large northern city called the local office of a refiner for prices and being quoted 6¼ cents stated that four refinery representatives located in his city had named a price of 6 cents and he refused to go even an eighth over that price for his present order of eight cars for prompt delivery. The close of the month commonly brings about some close prices but the price of U. S. Motor gasoline is held at the range noted. There is no expectation of any material change during the current week but, with fair weather, many look for a little stronger market after May 1, provided there is a continuance of the present crude and tank wagon prices.

Kerosene is moving slowly there being very little tractor demand as yet.

Fuel Oil Firmer

Some of the lowest refinery prices for fuel oil current last week were withdrawn this morning and the market though quiet seems a little more firm as buyers have shown their willingness to absorb a certain quantity of oil when the price is attractive. One of the larger gas companies placed an order for 25 cars on Saturday, of U. G. I. specification gas oil paying 2½ cents. Refiners are in several cases revising their prices to an eighth cent higher but buyers state that they will not pay more than 2½ cents for the quality of oil.

There is considerable inquiry from distributors of fuel oils for contracts for gas and low cold test, light gravity fuel oils for next winter. Little is being done as the idea of these buyers now is for a contract on the basis of present markets with a maximum but no minimum price. Several indicated today that they would stock a low cold test cracked gas oil suitable for furnace oil at 2½ cents but their idea is below the ideas of refiners. Several inquiries have been received by every office here regarding deliveries, dealers evidently fearing that the floods may delay shipments. Refiners state that they are shipping fairly promptly but that they expect they will have some trouble in the return of empties in which case shipments might be delayed.

Following Easter Sunday when the weather conditions were very favorable, there was an early improvement in the demand for gasoline and quite a better tone to the market. What might have followed a continuance of these factors is a matter of speculation for the weather changed for the worse and the demand for gasoline was cut short. Another influence against a better market was the thought that the posted prices for Mid-Continent crude would be dropped to the level of the Magnolia scale and that a tank wagon decline would follow. At this writing neither of these events have taken place and the trade is as much at sea as ever.

The season is still young. A year ago at this time there was a serious snow and sleet blockade in this region which was followed by the annual spring freshet. This year to the melting snows has been added the heavy rains that would usually come a month later. The result may be that we shall have a really early spring following the present spell of bad weather and with an early spring would come a long and extensive demand for motor fuels and lubricating oils. There is no doubt that the present conditions over the territory are against a large immediate demand for gasoline. Fields are flooded, country roads impassable and even the state highways are under water where the ground is low. The result is a continuance of buying by the dealers on a narrow scale. Nothing unusual at this time of the year but withering to the hopes of the oil men, both refiners and distributors, who were hoping for the beginning of the summer demand in April.

Little Change in Prices

There has been little change in gasoline prices in the spot market here. Immediately following Easter Sunday, there was a more active buying and considerable inquiry for gasoline over a period or over May and U. S. Motor gasoline, while still held at 6¼ to 6½ cents, was sold more largely at the higher than at the lower price. Then came the bad weather, the reduction in crude by the Magnolia Co., and a marked falling off in the spot business. The prices were still 6¼ to 6½ cents but there was a steadily increasing movement at the lower quotations and a larger request for gasoline at a price of 6 cents to the jobber. Dealer after dealer when asked for orders would come back with an offer of an order at 6 cents. There may have been some of these orders booked but it was only on the presumption that the refinery market would weaken a little and that it would be possible to cover at a profit before the delivery date arrived. There has been a good deal of this short selling and the result is in doubt. So far as any dealer here is willing to admit up to the last part of the week there was no U. S. Motor gasoline available for resale at less than 6¼ cents that carried full specifications for the grade. There was some untreated gasoline that was bought at 6 cents and a few sales at 6⅛ cents not out of the Group but the bottom of the Group 3 market up to the close of last week was 6¼ cents although some refiners stated that they had lost business on quotations direct to dealers at that price, the dealers claiming they bought for less. There the market closed last week. Takings on contract were stated to be fairly good even jobbers in the flooded districts in many cases not asking for any delay in shipments though in a limited number of cases this was done. The higher gravities were dull and rather easy in tone at practically the same prices as prevailed a week previously.

Natural gasoline has held its own but the local demand is limited right now. The 60-62 437 endpoint blend is selling quite well, both in those parts of the territory where the gravity is stipulated by law and in other sections where the dealer wants a little better gasoline to offer than the straight U. S. Motor gasoline. The demand for the supergasolines under various trade names is still stated to be most active, although some dealers state that the antiknock qualities are no longer regarded as of much importance. These 60-62 400 end point motor fuels and those that are claimed to be even better are being pushed as they do increase the gallonage of many dealers, especially if offered at the normal station price.

Fair Kerosene Movement

There is a fair movement in kerosene without any improvement in the price. Some sellers anticipate that the flooded areas will require a large amount of tractor fuel a little later as soon as the ground is hard enough to permit the use of tractors in the fields. Stocks seem to be more ample, in fact several refiners are anxious to move some of their accumulations which accounts for the prices quoted of 4¼ to 4½ cents with the latter above the market. The sale of distillates continues in a slow way. The weather has been such that there is need of heat in the homes but the demand is not sufficient to make an active market. There has been an occasional inquiry from dealers who are willing to put in a car or two, perhaps more if they were sure that the bottom had been reached. Dealers who order now for present distribution should try the dark color distillate with a low flash and cold test and sweet odor, an oil in fact that is everything that a distillate for home burner consumption should be except in color and educate their customers to the use of the dark oils. This product can be bought at 3 cents at most today and is the kind of distillate of which the supply will be most ample in the long run.

Fuel Oil Unsatisfactory

The fuel oil market has continued unsatisfactory, to the sellers at least although the large buyers are pleased to see their predictions of lower prices coming true. There has been quite a decline in prices during the past two weeks on all grades and there is still an uneasy tone to the situation due for the most part to the desire to sell quantities, first by one refiner and then by another, which makes the price situation difficult to determine. For example, a refiner called a buyer in a near-by manufacturing city and offered him some 24-26 oil with a low cold test and a sulphur content of less than one-half of 1 per cent at 97½ cents. The buyer replied that he was not buying at present but that he had a number of quotations at 95 cents. He may have had but this price is below the best prices named by refiners for resale and the probability is that some one or several sellers were simply trying to sell short, expecting to be able to cover at a profit before the date of shipment. There has been a good deal of this short selling or trying to sell short. One operator stated that he had tried hard to do some selling for future delivery but had been unable to do so as no one wanted to buy even at the low prices that he offered.

Why the buyers are so reluctant to place orders and why the market is in its present condition is a good deal of a puzzle to the local trade. Several oil men specializing in the sale of fuel oil to the larger industries state that the plants are not taking the full amount of their contracts, in some cases these dealers claim the takings on contract are from one-third to one-half the contract deliveries. Only one plant was known to be receiving fuel oil in train lots, that being a steel concern at Lorain, Ohio. If the large steel plants are not fully employed and why not, is a question. It is not impossible that in some of the industries there has been a considerable carry-over of material or finished parts from last fall. The manufacturers of drop forgings state that the delivery of parts to the automobile makers is on a much smaller scale than a year ago. The crop situation is also uncertain and there are other reasons why the average manufacturer is operating conservatively. But even these conditions fail to account fully for the present dullness in the fuel oil market.

More Competition

There has been more direct contracting between refiner and users of fuel oils than formerly this season which may account for some of the falling off in the demand experienced by the local marketers although there are some of the latter who report their business is and has been good. But this falling off may be in the individual business and not in the total consumption, due to the larger number of concerns that are trying to sell the consumers of fuel oil in industrial plants. There is no disposition to stock up on fuel oil at present prices but stocks of oil in users' tanks are not large as a rule. There may be exceptions but they are few and a larger buying movement is not impossible a little later when the season is further advanced. Right now quotations mean but little and pretty nearly every deal is a matter of bargaining and dickering. For the 24-26 fuel oil the usual quotation has been $1.05 but refiners with the oil ready to ship immediately have offered good oil at 97½ cents as stated and an 18-22 fuel oil stated to be rather high in sulphur has sold at 90 cents during the past week. One of the weak points in the situation is that dark gas oil is purchasable at $1.05 a barrel and in many cases is being substituted for the higher gravities of fuel oil. Sales were reported last week of a 28-30 fuel oil at $1.10 and even less for later delivery.

Gas Oil Quiet

The gas oil market is also very quiet. There has been a scarcity of cracked gas oil according to some buyers but the offers of straight run gas oil have been very free and at attractive prices. Of course it so happens that the concerns that talk of storing gas oil are only in need of cracked product so that they are still in a position to talk about storing. Some good sales of the dark gas oil to utility companies were made during the week and there has seemed to be a little greater willingness to buy for future needs but this is also largely a matter of talk. Several gas company buyers have been seen who stated that the present market for gas oil was attractive, prices being so low that they would buy if the market held. But as in fuel oil so far as any large business is being considered it is what may be done some time ahead and the present demand is quiet and unsatisfactory. Prices are a little lower but the change is not important. It would seem impossible that they should go much lower.

Lubricants Dull

The lubricating oil demand is not so good as it has been, the past week being a very dull one. There has been an unusual demand for bright stocks right through the spring and stocks are light, some of the leading sources of supply being sold ahead and behind on shipments. Other stocks are in better shape at the refineries but there is no excessive supply of any of the seasonable oils. Jobbers under present conditions are holding back their orders although there is a very fair movement on orders already placed. Those with supplies in stock are waiting for a better movement to the consumer. The industrial demand is fairly active and is moving along steadily. Refiners and compounders report there is a better demand for the higher grades of motor oil and that more attention is given by the distributors to the grade of oil carried in stock. The stand taken by the Vacuum

Oil Co., of marketing its oils through the independent oil man, is causing considerable speculation. At least the company has been most successful in getting its products into the independent stations and garages of the district. There are few here that do not carry the sign of the Vacuum Oil Co., and show its products in their displays. Other signs of the greater care given to the proper lubrication of the cars is the success that has been made by the Sinclair Refining Co., with its "Greasing Places" as they call them. This company is now operating six of these stations strategically located on the chief routes to and from the Loop district and they are all doing a large business. These greasing places are designed to give the best possible service with the least trouble or interruption to the use of the car. Considerable direct advertising has been done to the car owners but the company is getting a very good response to its efforts. The oils used, are of course, the product of the company's refineries. Some of the outside distributors who have given the planning and operation of the greasing stations a good deal of thought have also done a good business drawing customers they state from considerable distances, for quality oils and exceptional service.

Easter Consumption Great

The local distribution of gasoline over Easter Sunday was very great. The weather was remarkable being almost a summer day and a great contrast with the same day of last year when we had a snow and sleet storm. Following Easter Sunday there were heavy rains almost continuously during all of last week and even the driving on the paved roads was curtailed. The highways leading from the city were flooded at many low points and these state highways run between fields covered with water. The country roads are again in terrible condition but really no worse than a year ago at the same time but because of the early season it seems much worse. The present floods along the river bottoms are worse because the rivers are higher than usual but there is more or less flooding of these parts of the territory each spring.

Wide Margin and Price Cuts

The tank wagon price situation is about as it has been over the territory. It is inevitable that there should be price cutting with such a wide margin between the refinery costs and the sales prices indicated by the tank wagon scale. There is a little more right now than earlier in the season, more points where the price is below normal but so far the larger companies are ignoring these price cuts so far as possible and only reducing their prices locally where the condition results in the loss of important gallonage. There is a good deal of talk regarding the extension of the Q. D. A. on service station sales to business firms that employ salesmen and have a possible consumption as a firm of over 200 gallons per month. Suppose a real estate firm, for example, employing salesmen to show its properties, is able to secure a contract under which the gasoline bought by these salesmen is credited to the concern and if monthly purchases total 200 gallons a rebate of 2 cents a gallon is allowed. Cards of identification are issued to each member or salesman of the firm. The real objection to any such a plan would seem to be in the great amount of bookkeeping required to keep track of these discounts and if the rebate was allowed at the time of the sale and deducted from the cash payment there would be endless opportunities for evasions and trouble generally. The sales manager for a large refinery stated that he had seen such contracts and that they were being written by several companies in the city. Where the race for more gallonage will end is a question. The trouble with all these schemes for increasing sales by rebates and cut prices is that they are effective only for the time they are in force and do not make permanent customers out of the seekers of cheap oils and gasoline.

WEAKNESS IN EASTERN MARKET, ALTHOUGH CONSUMPTION IS LARGE

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 25.—There was very little encouragement in the refined oil market situation on the Atlantic Coast this week. Weakness in the gasoline market developed in several parts of the seaboard. In Rochester and Buffalo this was especially noticeable. The tank wagon market fell in these cities to 15 and 16 cents a gallon, respectively. The Atlantic Refining Co. reduced tank wagon prices generally throughout its territory.

Down to a certain point it was hoped that the gasoline tank wagon structure could be maintained at a fairly reasonable level, but when prices fell below what is generally considered the cost of delivery, everything included, it was seen that the price situation had apparently gone beyond control. When oil companies will sell below cost, conditions cannot be called healthy.

U. S. motor gasoline at the seaboard is quoted at 9 cents a gallon, but it is freely reported transactions are being made at 8¾ cents. As a result of this competition there is expected to be a further cut in Mid-Continent gasoline to around 5 cents. This is being predicted by oil refiners here, at least.

It has already been emphasized that the gasoline tank car business on the Atlantic Coast has risen greatly in the past two years. A large number of big bus and truck companies have grown up, and these buy most of their gasoline requirements in tank car lots, the present price being about 9 cents a gallon. Then, besides that, the leading refiners sell their special brands of gasoline to service stations, whether operated by themselves or otherwise, and they receive a better price, depending largely on the distance from refinery the material has to be delivered.

The chief competition now seems to be between the Atlantic Coast refineries and the smaller refining companies operating in the east, middle west and southwest which deliver gasoline to points in the Atlantic territory in tank car lots. It is said that the average cost of tank car delivery for these companies is 4 cents a gallon. In as much as Atlantic Coast refiners are selling U. S. motor gasoline for 9 cents, it would seem that their competitors would have to sell at something like 5 cents a gallon, f.o.b. their own plants. The Atlantic Coast refiners have the advantage of using bulk tankers to transport crude and gasoline, instead of having to use the railroads. They can therefore get their material at a cost of something like 1 to 2 cents a gallon below that of their competitors. It would appear, as a result of this, that no matter how low the price goes, the Atlantic Coast refiner will have an advantage over his competitors in his (the eastern refiner's) own territory. Going a step farther, it would look as if the competition would benefit no one very much except the consumer.

Gasoline Consumption Large

The weather on the Atlantic Coast has been generally warm and fair, and, judging by the motor vehicles on the road, consumption of gasoline must be holding up very well. Refiners report a large increase in sales over this time last year. However, consumption does not seem to be a factor in the present price situation.

It is generally expected that present prices of gasoline will force farther curtailment on the part of refiners all over the country. The Standard Oil Co. of New Jersey is said to have cut production schedules materially, having laid off something like 400 men since March 1. The Fall River plant of the New England Oil Refining Co. is also understood to have partially closed down temporarily. Strict curtailment, amounting to almost a shutdown, is also reported at the Brunswick plant of Atlantic Refining Co.

Kerosene Unchanged

Kerosene is showing a firmer tendency due to increased domestic and export consumption. Prices are holding, with the exception of some isolated points where there is some local competitive condition. Sales of furnace oil are increasing materially as a result of new building operations, many new office structures and homes being equipped with oil burners. Furnace oil brings a higher price than kerosene in some sections.

Gas and Fuel Oil

There seems to be no change in the gas oil situation, the price holding firm. Diesel oil is unchanged in price, and bunker fuel oil is also unchanged. Despite the firm tendency in quotations, it is not expected fuel oil will hold up indefinitely in the fact of lower gasoline and crude oil prices. Those who maintain that fuel oil is a competitor of crude as a raw material for gasoline must also admit that fuel oil cannot stay up in price when crude oil is going down. High-grade Mid Continent crude oil at the well is selling for more than 50 cents a barrel less than bunker fuel oil at New York.

Lubricating Oils

Lubricating oils have held up remarkably well in the face of drastic cuts in high-grade crude oil prices. This is probably due to the fact that there has not been as marked an overproduction of lubricating oils. There seems to be little distress lubricating oil in the eastern market at the present time.

Paraffin wax is firm, with the exception of 120-122 a.m.p. which is available for 3⅞ cents a pound for refined, a decline of one-eighth of a cent. A much better domestic and export demand for wax is reported. Overproduction alone seems to be holding prices down.

The petrolatum market is dull and prices are unchanged. It is reported that snow white is available at 8 cents a pound, but no sales are known to have been made at that figure.

Export Market Improves

Continued improvements is noticed in the oil export market here. More liberal shipments of gasoline, kerosene and lubricating oil are being made to Europe in bulk. Germany is an important buyer here at the present time. During the past week bulk shipments of gasoline exceeded 4,000,000 gallons, of kerosene 3,400,000 gallons and lubricating oil 2,200,000 gallons.

Other departments of the export market showing improvement included paraffin wax, shipments of which exceeded 1,300,000 pounds.

A good demand for gasoline and kerosene in cases developed, with Brazil a large buyer.

Petroleum asphalt shipments held up, several good-sized consignments to European countries bringing the total for the week up to over 1,200 tons.

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
Gasoline:	Apr. 20	Apr. 13	Apr. 6
Bulk	4,137,713	.....	3,335,346
Cases	970,050	2,562,990	732,990
Kerosene:			
Bulk	3,460,009	235,004	.....
Cases	1,583,990	3,723,280	710,450
Lubricating oil:			
Bulk	2,273,460	2,396,830	.....
Barrels	1,131,500	1,124,500	560,450
Cases	172,920	89,830	336,280
Lubricating grease:			
Barrels (lbs.)	1,250,100	206,100	995,400
Paraffin wax:			
Bags (lbs.)	1,160,720	2,516,140	1,476,640
Barrels (lbs.)	236,075	807,975	.....
Petroleum asphalt:			
Barrels (tons)	1,225	6,391	.....
Petroleum coke:			
Bags (tons)	.....	6,278	.....

The foregoing figures include shipments of 500 bbls., 1,000 cases, or over.

Tanker Market

The oil tanker chartering market is extremely dull. Rates seem to be holding up, however. The situation is probably due to the fact that there is practically no idle tonnage.

Oil Receipts Heavy

Receipts of crude and refined oil at Atlantic Coast ports during the week ended April 20 amounted to 5,345,000 bbls., the highest weekly figure attained so far this year. Receipts from all sources were large. The total from the Gulf Coast amounted to 3,427,000 bbls., a daily average of 490,000. Receipts from the Pacific Coast were 1,063,000 bbls., or 152,000 bbls. daily. Imports totaled 855,000 bbls., a daily average of 122,000.

The trend of receipts is apparently contrary to that of refinery operations. This is more unusual in view of the fact that it is known pipe line receipts of crude oil at Atlantic Coast plants have also increased greatly. Of course the larger receipts indicate the growth in consumption, but at the same time it is interesting that eastern oil companies should buy more crude and refined oil despite the fact that they are cutting down on refined oil production themselves.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
Gulf Coast	490,000	394,000	426,000
Pacific Coast	152,000	75,000	32,000
Mexico	79,000	60,000	70,000
South America	43,000	55,000	96,000
Total	764,000	584,000	624,000

Daily Averages by Months

1927:	Gulf	Pacific	Mexico	S. Am.	Total
Mar.	345,000	103,000	36,000	81,000	565,000
Feb.	379,000	89,000	40,000	48,000	556,000
Jan.	362,000	73,000	49,000	61,000	545,000
1926:					
Dec.	363,000	57,000	49,000	61,000	530,000
Nov.	335,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000
Sept.	299,000	98,000	63,000	58,000	518,000
Aug.	320,000	61,000	71,000	46,000	498,000
July	360,000	66,000	115,000	36,000	577,000
June	396,000	104,000	117,000	18,000	635,000
May	318,000	66,000	114,000	25,000	523,000
Apr.	326,000	92,000	126,000	30,000	564,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

PENNSYLVANIA MARKET WEAK DESPITE DEMAND

OIL CITY, Pa., Apr. 23.—The recent reductions in crude oil prices are now having an effect on the price structure of the refined market in this district, neutrals being the only product which is in good demand at this time.

Gasoline and naphthas were weak during the week and there are some refiners and marketers who believe the price of motor gasoline in the Pennsylvania district will soon go below the 9-cent mark, which is the present prevailing quotation. The weakness of gasoline is noticed despite a remarkably large consumption of motor fuel throughout the Pennsylvania marketing territory. Good motoring weather has prevailed during most of this month, and the automobiles are out in large numbers, and some long trips are being taken by motor where formerly the passenger trains were used.

Wax is very weak, and the prices are down still more. There is no demand for kerosene at the refineries, and consumption of this product, like gasoline, is big at present with tractors busily engaged in plowing. The demand for fuel oil is down, and it is getting still weaker with the ending of the burning season and the closing of many cracking plants. Cylinder stocks are in poor demand. Neutrals furnish the only bright spot in the market at present and are still very strong and scarce. The demand for bright stocks has decreased considerably.

TEST IN HARDIN COUNTY, OHIO

KENTON, Ohio, Apr. 23.—It is reported from Forest, Hardin County, Ohio, that William F. Kurtz has made a location for a third test for oil or gas near the town of Patterson, 1½ miles south of Forest. Kurtz got a 2,600,000-foot gasser in one of his tests and the new location is a half mile west and three-quarters of a mile north of the gas well.

ANGLES TO CONSIDER IN HEAT TRANSFER

(Continued from Page 36)

surface, yet because of their multitudinous number the sum of all of these small resistances may result in a total resistance of relatively high magnitude. The solid material between the spaces may be relatively a good conductor of heat, yet if the physical structure of the particles be such as to provide a sufficient number of spaces with their corresponding surface resistances, the resulting product may be a very good insulation. This is illustrated by the fact that the conductivity of magnesium carbonate in the form in which it is used as an insulation is about one thirtieth of that of the same material in solid form. An even more striking example is the case of carbon which in the form of graphite has a conductivity more than 200 times that of carbon in the form of lampblack.

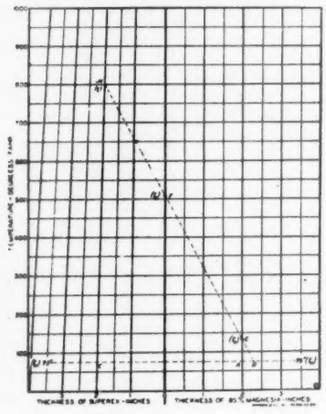


Figure 2: Mean temperature chart.

In order to use the chart, Figure 2, for two materials and one surface resistance, R^s, locate point H at the point on the chart representing thickness of first material and temperature at its warmer face. Locate point A at the point representing thickness of second material and room temperature. Lay off distance $AD=R^s k_2$. Draw the straight line HD. The intersection of this line with the base line OO gives the temperature at the boundary between the two materials. The intersection with the line representing the outer surface of the second material gives the temperature of this surface.

Surface Effects

Sufficient data are available for the solution of most insulation problems with a highly satisfactory degree of accuracy. However, the deficiency of the work in this field (and the author makes no exception of his own earlier published results in this connection) is that results presented are over-all coefficients and make no provision for the separate effects of radiation and convection. One of these effects, radiation, is a function of the difference of the fourth powers of the absolute temperatures, while the other, convection, is generally considered to be a function of temperature difference. Therefore, while the results may be applied with assurance of accuracy to conditions closely approximating those under which they were obtained, they may not be extended very far beyond the range of actual experimentation.

An interesting feature of Eberle's tests shown in Figure 3, is that the pipe of smaller diameter is shown to have the lower rates of loss. However, the air temperature and consequently the absolute temperatures of both the pipe and its surroundings were higher in the series of tests on the larger pipe. This undoubtedly accounts in a large measure for the peculiarity of the results.

As will be shown later, a relatively low air velocity will effect a relatively large increase in heat transfer from a surface. It is evident, therefore, that the effects of absolute temperature and of air velocity may completely overshadow the effect of pipe size. All results on bare surface losses are to be considered as fairly convenient approximations which will serve until more scientifically complete data are available.

The existing information on rates of heat transfer from insulation surfaces to surrounding air is in much the same

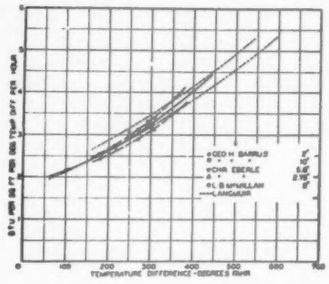


Figure 3: Rate of heat transfer from metal surface to air—Barrus, Eberle, McMillan and Langmuir.

state as that outlined above for bare surfaces. Figure 4 shows results of experiments by the author[1] and by Bagley[2].

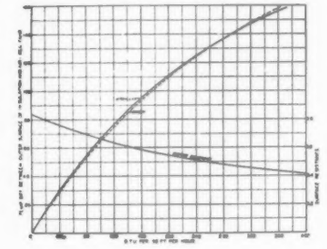


Figure 4: Rates of heat transfer from canvas-covered insulation surfaces to air.

The increases in heat transfer due to air velocity at various surface temperatures and with an air temperature of

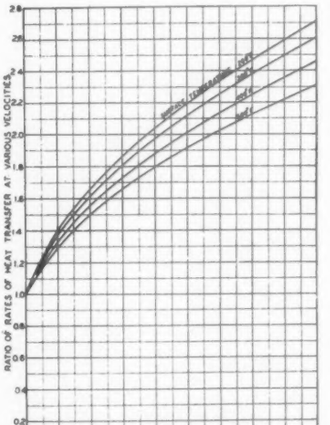


Figure 5: Relative rates of heat transfer at various air velocities based on Langmuir's equations. (Rate of heat transfer under still air conditions considered as unity.)

80 degrees Fahrenheit are shown in Figure 5. The actual rates of heat transfer, under the same conditions, are shown in Figure 6.

Air Velocity

Effect of Air Velocity on Heat Transfer Through Insulation: In the case of well-insulated surfaces the increases in heat losses due to air velocity are very small compared to the increases just shown for bare surfaces. This is due to the fact that air flowing over the surface of the insulation can increase only the rate of heat transfer from surface to air and cannot change the internal resistance to heat flow inherent in the insulation itself.

The effect of the air circulation, therefore, is to cool the surface of the insulation to a temperature lower than it would have under still air conditions, thereby increasing the temperature drop through the insulation. This is illustrated in Figure 7 by the decrease in temperature from t_2 to t'_2. Since the heat transfer in a given case is proportional to the temperature gradient, it is obvious that the heat flow will be greater when the temperature difference is $t_1—t'_2$ than when it is $t_1—t_2$.

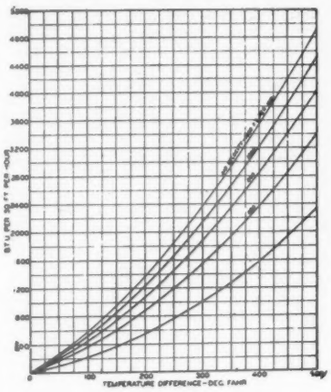


Figure 6: Effect of air velocity on rates of heat transfer from surfaces of various temperatures. (Air temperature 80 Fahrenheit.)

In the case of surfaces located out of doors, the combined effect of wind and rain may bring the surface temperature of the insulation practically down to the air temperature, yet even in this extreme case the increase in heat loss through the insulation is not as great as might be expected. This is illustrated by the following example, based on a flat surface insulated with 2-inch thick material, having a conductivity of 0.5 b.t.u. per square foot, per degree temperature difference per 1-inch thick, per hour, and a rate of heat transfer from its surface to air under still air conditions of 1.8 b.t.u. per square foot per degree temperature difference per hour.

Internal resistance of insulation $= \frac{2}{0.5} = 4.0$

Surface resistance $= \frac{1}{1.8} = 0.556$

Total resistance $= 4.556$

Rate of heat transfer $= \frac{1}{4.556} = 0.22$

b.t.u. per square foot per degree temperature difference per hour.

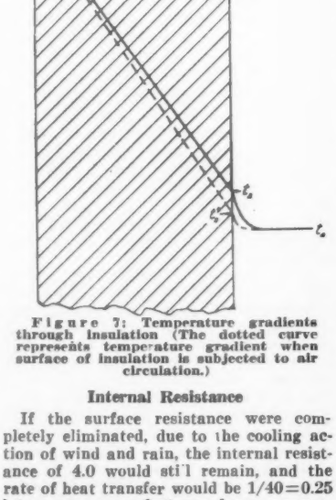


Figure 7: Temperature gradients through insulation (The dotted curve represents temperature gradient when surface of insulation is subjected to air circulation.)

Internal Resistance

If the surface resistance were completely eliminated, due to the cooling action of wind and rain, the internal resistance of 4.0 would still remain, and the rate of heat transfer would be $1/40=0.25$ b.t.u. per square foot per degree temperature difference per hour. Therefore, the maximum increase in loss due to wind and rain would be $\frac{0.25-0.22}{0.22}=13.6\%$

In like manner, it may be shown that the maimxum increase for 1-inch thickness of the same material under the same conditions is 27.9 per cent, and, in the case of 3-inch thickness, 9.2 per cent. It is therefore apparent that the thicker or the more efficient an insulation is, the less its rate of heat transfer will be affected by air circulation.

Figure 8 shows graphically the relative increases in rates of heat transfer, due to air circulation, in the case of a bare surface maintained at 400 degrees Fahrenheit and the same surface insulated with 1 and 2-inch thicknesses of an insulation with a conductivity of .48 B.t.u. per square foot, per degree temperature difference per 1-inch thick, per hour. In these curves, the effect of air velocity on rate of heat transfer from surface to air is based on Langmuir's equations.

All of the above discussion as to effect of air circulation on losses through insulation, is based on flow of air over the surface of the insulation, and applies to cases where the insulation is tightly sealed. If the condition of the insulation is such that the air may circulate through cracks and crevices in the insulation, the increases may be far greater than those given above. Therefore, it is essential that all insulation be sealed as tightly as possible, and this is most particularly true of insulation located out of doors.

Surface Temperature

Surface Temperature No Satisfactory Measure of Heat Transfer The lack of a simple means to measure approximately the amount of heat loss from surfaces has naturally led to a widespread feeling that the degree of effectiveness of insulation may be estimated by the surface temperature. Probably no other conception

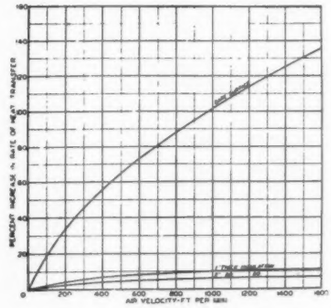


Figure 8: Increase in heat losses due to air circulation.

in connection with heat transfer is so generally misused as this one. Surface temperature considered alone, without reference to temperature of surroundings, is absolutely no measure of the rate of heat transfer. A surface at 150 degrees Fahrenheit in a confined space exposed to air at 150 degrees Fahrenheit may be losing on heat at all, whereas a surface at 100 degrees Fahrenheit exposed to air at a temperature of 50 degrees Fahrenheit is losing heat in very considerable quantities.

Measuring the difference between the surface temperature and the air temperature is a little better, but not much, unless all other conditions are identical —which they rarely are. It is easily possible for the losses to vary over a range of several hundred per cent at the same temperature difference, depending on the air velocity to which the surface may be exposed. Nor is it necessary for that velocity to be very high in order to render either surface temperature or temperature difference, surface to air, entirely valueless as an indication of heat loss.

Air circulation over the surface of insulation increases the rate of heat transfer from the surface and, as illustrated in Figure 7, this tends to cool its surface and increase the total rate of heat transfer. Therefore, with lower surface tem-

perature, more heat is being transmitted. This fact is illustrated more forcibly in Figure 5 where it may be seen that the rate of heat transfer from a surface 100 degrees Fahrenheit above air temperature and exposed to air circulating at a velocity of 400 feet per min. (approximately 4.5 miles per hour) is greater than for a surface 150 degrees Fahrenheit

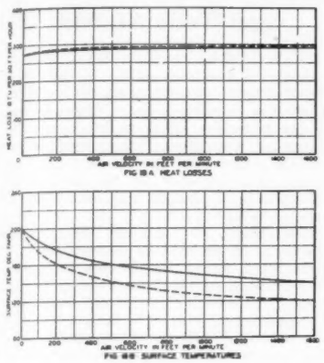


Figure 9: Effect of air velocity on heat losses and on surface temperatures of insulation.

above air temperature but exposed only to still air.

Reference to Figure 9 illustrates still more clearly why surface temperatures do not give a reliable measure of heat transfer through insulation. The solid line curves are based on the factors given in Figure 5 while the dotted line curves illustrate conditions which would exist if the increases in surface transmission rate due to air circulation were of the order of the higher values shown. It is apparent that the higher rates of increase of surface losses would have little effect on the total rate of heat transfer while surface temperatures would be still further reduced.

Air circulation is not the only cause of unreliability of surface temperature as a measure of heat loss. Exposure of the surface to other near-by hot or cold surfaces, and the nature of the surface itself, may have almost if not quite as noticeable effects on surface temperatures. A bright, polished surface may be losing heat at a rate not much over half as great as that from a dull surface and yet have a greater surface temperature.

While these variables will have relatively little effect on the total heat transmitted by the insulation, they may have entirely disproportionate effects on surface temperatures

Economic Data

Perhaps the most valuable use for accurate data on heat transfer in connection with insulation is in the calculation of the thickness of insulation required under various conditions for most economical results.

TABLE 1

Temp. Diff. Deg. Fahrenheit	Value of Heat in Dollars per Million Available B.t.u.									
	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
100	.088	.175	.263	.350	.438	.526	.613	.701	.788	.876
200	.175	.350	.526	.701	.876	1.051	1.226	1.402	1.577	1.752
300	.263	.526	.788	1.051	1.314	1.577	1.840	2.102	2.365	2.628
400	.350	.701	1.051	1.402	1.752	2.102	2.453	2.803	3.154	3.504
500	.438	.876	1.314	1.752	2.190	2.628	3.066	3.504	3.942	4.380
600	.526	1.051	1.577	2.102	2.628	3.154	3.679	4.205	4.730	5.256
700	.613	1.226	1.840	2.453	3.066	3.679	4.292	4.906	5.519	6.132
800	.701	1.402	2.102	2.803	3.504	4.205	4.906	5.606	6.307	7.008
900	.788	1.577	2.365	3.154	3.942	4.730	5.519	6.307	7.096	7.884
1,000	.876	1.752	2.628	3.504	4.380	5.256	6.132	7.008	7.884	8.760

ROCKY MOUNTAIN AREA

(Continued from Page 57)

inch, and will be laid for the Minnesota Northern Power Co.

RUNS FROM THE FIELDS

Salt Creek	45,000
Teapot	1,110
Big Muddy	2,820
Grass Creek	2,700
Elk Basin	990
Greybull	25
Rock River	2,800
Rex Lake	170
Lance Creek	780
LaBarge	240
Poison Spider	170
Osage	360
Hamilton Dome	800
Lander	150
Byron	60
Lost Soldier	3,760
Ferris	80
Simpson Ridge	30
Cat Creek	2,370
Lake Basin	190
Sunburst	12,500
Walden	410
Florence	700
Moffat	2,150
Fort Collins	3,315
Tow Creek	745
Boulder	25
Rangeley	100
Hogback	750
Rattlesnake	280
Table Mesa	No Runs
Artesia	1,900
Total	87,480

SHREVEPORT MARKETS AFFECTED BY FLOODS

SHREVEPORT, La., Apr. 25.—The flood situation in Arkansas, Louisiana, Tennessee and Mississippi continues the dominating factor in North Louisiana and Arkansas refinery markets; and as the week opens, sellers of this district are facing an extremely uncertain future. The market itself is torn between opposite influences because of the floods. The acute shortage of tank cars, due to the fact that railroads virtually have placed an embargo on the return of empties, is tending to steady prices and place a premium on material which can be shipped immediately.

On the other hand, the curtailing of demand and the inability of refiners to move material from their plants to keep up with production is aggravating the already unhealthy situation. In other words, the floods have resulted in a weaker fundamental position for refiners of this district, but for the time being they are steadying prices.

This applies principally to gasoline, as movement of other products ordinarily is restricted at this time of year. Sellers Monday still were quoting 6¼ to 6½ cents on 58-60 437 U. S. Motor gasoline, although several stated they had been offered more tf cars were available immediately. Getting cars, however, was a problem, and in the majority of cases sellers were not able to take up the buyers on their higher bids. Efforts were being made Monday night to rush empties from Tulsa, from which point rail lines have been opened again.

GERMANY IS BUILDING OIL-FROM-COAL PLANT

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D C., Apr. 23.—Approximately 30,000 workmen are employed on the construction projects or in the factories of the Leunawerk, the German Dye Trust's large atmospheric fixation plant, according to advices to the Department of Commerce from Trade Commissioner W. T. Daugherty at Berlin. Three new production units of the organization are in process of erection and one of them has been practically completed.

The largest undertaking of the Leunawerk is the construction of the mammoth oil-from-coal plant, which is already in skeleton structure and which, it is reported, is expected to begin operations, on a small scale at least, during April of this year.

The hydrogenation unit of the new oil-from-coal plant, according to reports in Germany, probably will start initial production in April, but the distillation plants will not be operating at full capacity for at least a year. The plan is to hydrogenate low-grade lignite under pressure and temperature to produce substitute petroleum crudes and therefrom, by distillation, the petroleum fractions. The operation is backed by the I. G. Farbenindustrie A. G., Germany's largest industrial enterprise.

It is generally accepted in Germany that the I. G. chemists have developed a cheaper process for producing hydrogen by leading hydrogen-containing raw gases over lignite mined on the spot instead of coke as heretofore. Leunawerk is also reported to be recovering 10 metric tons of 100 per cent pure sulphur from waste gases by washing them with alkali iron solutions or slimes, to which tartaric or oxalic acid is added, and leading them through absorbent carbon or silicic acid. This by-product is sold at the American market price. These and other economies give the Leunawerk an outstanding advantage among modern chemical enterprises.

SUMMARY OF CALIFORNIA OIL FIELD OPERATIONS FOR MARCH, 1927

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for March amounted to 19,835,724 bb's., an average of 639,862 bbls. per day. This is a decrease of 2,378 bbls. per day under February production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 259,680 bbls. The total stocks at the end of the month were 147,033,173 bbls. The total stock increase for the year 1927, up to March 31, 1927, was 1,420,997 bbls. Comparative figures as of March 31, 1927, February 28, 1927 and March 31, 1926, are shown in detail below.

Seventy-nine wells were completed during the month with an initial daily production of 40,552 bb's., compared with 68 wells completed during February with an initial production of 29,011 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

District—	Barrels Per Month	Daily Average Mar.'27	Feb.'27	Mar.'26
Kern River	406,020	13,097	13,744	12,062
Mount Poso	5,165	167	207	.....
McKittrick	159,572	5,147	5,146	5,433
Midway-Sunset	2,747,956	88,644	89,584	93,017
Elk Hills	1,037,339	33,463	34,215	32,283
Lost Hills-Belridge	150,937	4,869	4,704	4,433
Coalinga	608,235	19,620	19,868	21,002
Wheeler Ridge	34,671	1,118	1,041	973
Watsonville	1,783	58	58	58
Santa Maria	151,587	4,890	4,958	5,416
Summerland	4,095	132	130	129
Goleta	8,434	272	47	.....
Ventura Avenue	1,582,258	51,041	50,738	26,256
Ventura-Newhall	186,107	6,003	6,053	5,558
Los Angeles-Salt Lake	54,935	1,772	1,832	1,897
Whittier	59,783	1,928	1,806	2,190
Fullerton (Brea-Olinda)	762,615	24,278	24,566	18,143
Coyote	439,132	14,166	14,838	16,881
Santa Fe Springs	1,343,482	43,338	44,381	49,502
Montebello	506,456	16,337	16,590	17,696
Richfield	637,333	20,559	21,147	13,111
Huntington Beach	2,407,779	77,670	83,875	45,949
Long Beach	2,933,300	94,623	93,109	110,739
Torrance	752,150	24,263	25,086	39,234
Dominguez	565,911	18,255	18,558	20,791
Rosecrans	336,596	10,858	11,762	20,301
Inglewood	1,154,475	37,241	38,284	53,077
Newport	1,246	40	48	128
Seal Beach	806,372	26,012	15,866	.....
Total	19,835,724	639,862	642,340	607,283
February	17,982,711	642,240		
Decrease	*1,853,013	2,378		

*Increase.

STOCKS

	Mar.31,'27	Feb.28,'27	Mar. Stock Decr'ses	Mar.31,'26
Heavy crude, heavier than 20° A. P. I., including all grades of fuel	89,015,608	89,107,872	92,264	89,237,660
Refinable crude, 20° A. P. I., and lighter	29,500,917	29,913,353	412,436	43,564,186
Gasoline	14,521,422	13,889,204	*632,218	11,116,925
Naphtha distillates	3,991,351	3,903,222	*88,129	6,339,453
All other stocks	10,003,875	10,479,202	475,327	10,161,739
Total all stocks	147,033,173	147,292,853	259,680	160,419,964

*Increase.

DEVELOPMENTS

District—	New Rigs Up	Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Wells Drillers	Abandoned Wells Producers
Kern River	7	8	5	715	1,268	..	..
Mount Poso	3	5	1	400	3	..	..
McKittrick	4	2	2	35	310	..	..
Midway-Sunset	13	25	20	2,053	2,982	1	4
Elk Hills	..	..	..	..	247	..	..
Lost Hills-Belridge	..	2	..	..	309	..	..
Coalinga	..	5	2	60	941	1	5
Wheeler Ridge	1	1	1	125	29	..	..
Watsonville	..	..	..	..	6	..	..
Santa Maria	2	4	2	350	202	1	..
Summerland	1	1	..	..	114	..	..
Goleta	..	2	..	..	1	..	..
Ventura Avenue	7	33	4	6,308	90	..	..
Ventura-Newhall	3	36	1	75	520	3	..
Los Angeles-Salt Lake	..	..	..	..	368	..	..
Whittier	..	..	..	..	180	..	..
Fullerton (Brea-Olinda)	..	14	..	..	438	..	..
Coyote	..	2	..	..	209	..	..
Santa Fe Springs	..	3	1	262	338	1	4
Montebello	1	6	1	50	182	..	..
Richfield	8	31	5	999	212	..	..
Huntington Beach	11	51	18	6,561	530	1	1
Long Beach	7	20	2	730	707	4	18
Torrance	1	5	..	..	655	..	..
Dominguez	..	3	..	..	78	..	..
Rosecrans	..	3	..	..	131	3	..
Inglewood	1	3	..	..	213	..	..
Newport	..	..	..	..	7	..	..
Seal Beach	108	98	14	21,829	28	..	..
Miscellaneous Drilling	3	135	..	..	..	13	..
March	181	493	79	40,552	11,298	27	29
February	66	439	68	29,011	11,339	33	23
Increase	115	54	11	11,541	*41	*6	7
Average for year 1926	95	432	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	13
Average for year 1924	103	510	103	42,412	10,903	28	21
Average for year 1923	110	759	82	114,690	8,933	24	
Average for year 1922	116	605	67	43,700	9,410	17	

*Decrease.

JOSEPH REGAN RECOVERING

Suddenly stricken with appendicitis on April 17, Joseph Regan, president of Regan Forge & Engineering Co., was operated upon and is convalescing. He expects to be back on the job shortly after the first of May and plans to make an extended trip through the Mid-Continent, accompanied by the firm's sales manager, Bert Cleveland. James Regan has recovered from his recent serious illness and is handling his brother's responsibilities in the interval.

REFINING AND MARKETING

CHANGES IN DISCOUNTS BY STANDARD OF OHIO

CHICAGO, Apr. 23.—The price situation in Ohio has not been ironed out by the decline in gasoline station and wagon prices of 2 cents a gallon, which went into effect on April 20. The present prices made by the Standard Oil Co. of Ohio are 18 cents tank wagon and 20 cents service station, including a 2-cent state tax. These prices apply at all stations of the Standard Oil Co. of Ohio and include the bulk stations on sidings at which pumps have been installed and at which the prices of gasoline to the public was the regular tank wagon price. The Q. D. A. allowed by the Standard Oil Co. of Ohio are as follows: Tank wagon, on all monthly purchases of 300 gallons or over, one-half cent discount; 750 gallons or over, 1 cent discount; 1,500 gallons or over, 1½ cents discount; 2,500 gallons or over, 2 cents discount. Service station, on monthly purchases of 300 gallons or over, 1 cent discount; on 600 gallons or over, 2 cents discount.

The Roxana Petroleum Corp. has made a price of 18 cents, including the tax either tank wagon or service station, and pays a discount at the end of each month of 2 cents a gallon on all gasoline purchased from the company for resale. The Roxana Petroleum Corp. does not give any quantity discounts.

The Pure Oil Co. and other distributors of gasoline have met or expect to meet the new prices and discounts of the Standard Oil Co. of Ohio.

The Standard Oil Co. of Ohio has withdrawn the sale of coupon books at a discount of 2 cents a gallon. It was the sale of these coupon books which gave the owner a discount of 2 cents a gallon from the station price that was the cause for the Roxana Petroleum Corp. adopting the practice of selling at the service station at tank wagon prices.

THREE-CENT GASOLINE TAX IN PENNSYLVANIA

The gasoline tax in Pennsylvania will be increased from 2 to 3 cents, effective July 1. The bill passed both branches of the Legislature and last week was signed by the governor.

Among the provisions of the act now effective are those which place a tax on consumers who buy in large quantities outside the state for their own use and which provide that taxes due the state shall constitute a lien on the property of the person from whom they are due.

"The most important change in the new law is that consumers must also pay a tax," according to Auditor General Martin. "The consumer shall include any person, firm copartnership, association or corporation who or which imports or causes to be imported into the commonwealth liquid fuels for his or its own use which has not been purchased from dealers and one which no tax was collected by a dealer under the provisions of the gasoline tax laws.

"The consumer, the same as the dealer under the new law, will be required to take out a permit which authorizes him to engage in the business of consuming gasoline within the state. All permits now in the possession of dealers will remain in force until either revoked or renewed by the auditor general."

OIL USED BY P. R. R.

The Pennsylvania Railroad during 1926 used $2,859,447 worth of lubricating oils and illuminating oils, according to the annual report of the company. The company, while a large consumer of lubricating oils, uses very little fuel oil. Its fuel oil purchases for 1926 totaled only $78,561.

CLAIMS PURCHASING CENTRAL STATION POWER INADVISABLE

By J. B. Northrop*
Superintendent, Ohio Valley Refining Co.

This is rather a deep subject for one not versed in the technicalities of either the production of steam or the generation of electrical energy. It is therefore to be expected that there will be many adverse opinions to the assertions contained in this paper.

I do not mean to infer that existing plants can be immediately equipped or remodeled without the expenditure of considerable sums of money to take advantage of the saving that the most reputable manufacturers and engineers advise us can be made. Most of us would have to completely reconstruct our boiler houses, installing high pressure units capable of withstanding 170 pounds to 200 pounds of steam pressure, before any attempt could be made to generate economically our own electrical power.

The average small refinery of 1,000 to 1,500 bbls. per day throughput will utilize as prime movers, pumping oil and water, operating refrigerating equipment, filter house and centifuge department, including lights, manufacturing completely all products into finished oils, from 200 to 250 horsepower or approximately 2 500 k.w.h of electric energy per day which based on the lowest scheduled rate in effect in the Pennsylvania district that I know of will cost 1½ cents per k.w.h., or approximately $40 a day. Rates differ very considerably in various sections, the above rate being obtainable only on a continuous load factor and demand charge of 2,500 to 3,000 k w.h. per day, any increase in the power load lowering the rate until it would be possible in the larger plants to obtain a rate on the entire requirements of approximately 1 cent per k.w.h. Naturally this will place them in an advantageous position as compared with the smaller plants.

Boiler Efficiency

In defense of the title of this paper, I have been repeatedly told that the average refinery in the Pennsylvania district does not operate its boiler house at an average efficiency of quite 60 per cent, most of the equipment being poorly set and of such a type that better results are almost impossible of attainment. To place himself in a position to manufacture his own electrical energy the refiner would first have to install new boilers of sufficient capacity to take care of his entire requirements, let us say approximately 800 boiler horsepower per 1,000 to 1,500 bbls. of crude throughput per day. These boilers could be purchased from any one of several different manufacturers, guaranteed to operate continuously at 150 per cent of rating and 72 per cent of efficiency, providing they are equipped with approved stokers and forced drafts, consuming their fuel practically smokeless.

From quotations furnished by manufacturers, including superheaters installed in the boilers to add 100 degrees to the steam temperature, soot blowers, feed water regulators, valves, piping and insulation, two boilers could be completely installed and placed in operation at a cost of approximately $35,000. Should your boilers be in the 60 per cent efficiency class, the installation due to its greater efficency should net a saving of $10,000 to $12,000 a year, this saving varying somewhat in the different localities depending on the price of coal delivered to the plant.

The superheater as installed will cost very little, if anything, to operate, rather utilizing the greater portion of the waste gases after they have done their work in generating steam.

Electrical Equipment

You will now be in a position to install sufficient electrical equipment to take care of your power requirements.

There are two methods by which this can be accomplished, the first of which is in common practice, especially in the larger plants. This consists of passing steam through steam turbines at a high head pressure, ordinarily with no superheat, and with a back pressure of not to exceed 20 pounds, collecting other exhaust steam from prime movers, steam pumps and such other equipment throughout the plant as may be in operation, to which is added sufficient live steam through regulating valves to maintain at all times the desired pressure in the exhaust line. This waste steam, after trapping out the condensation, is returned to superheaters which are usually installed so as to utilize the heat units contained in the waste gases from the stills. The superheated low pressure steam is in turn repiped to various parts of the plant to be used in process work, such as operating stills, heating tanks and in the refrigerating department.

By the adoption of this system a great

(Continued on Page 170)

*Paper presented at Cambridge Springs, Pa., meeting of National Petroleum Association.

WILLOCK HEADS NEW MARKETING COMPANY

PITTSBURGH, Pa., Apr. 22.—George J. Willock, formerly vice president and part owner of the Waverly Oil Works Co. for 20 years, announces the formation of a new company to be known as the Willock Oil Corp. This company will conduct a general marketing business of petroleum and kindred products, including lubricating oils, fuel oils, gasoline, kerosene, grease, paraffin wax, etc., with main offices in the First National Bank Building, Pittsburgh, Pa.

In order to devote his entire time and attention to this newly-formed company, Mr. Willock has severed all relations, in every capacity, with the Waverly Oil Works Co.

Associated with Mr. Willock in this new company will be M. G. Service, formerly of the Waverly Oil Works Co., serving finally in the capacity of sales manager of the industrial division. Also S. M. Hamilton, formerly with Pittsburgh Oil Refining Co. and Waverly Oil Works Co., and R. S. Campbell of both the aforementioned companies. Messrs. Campbell and Hamilton have since, September, 1926, had charge of the Pittsburgh offices of the West Penn Oil Co. of Warren.

REDUCTION AT CASPER PLANT

CASPER, Wyo., Apr. 23.—The Standard Oil Co. of Indiana has reduced its refinery force here by laying off about 200 men. The company has extensive cracking facilities here and also operates the skimming and lub plants of the Midwest Refining Co. The laying off of the men is due to the fact that new construction work has been reduced to a minimum.

NEW DISTRIBUTING CONCERN

CHICAGO, Apr. 23.—The Tri-State Oil Co. has been organized by P. D. Count, C. L. Larson and George Kunz at Warsaw, Ill., to deal in petroleum products.

KEROSENE EQUIPMENT ARRIVES AT BATOUM

NEW YORK, Apr. 25.—Equipment of a kerosene treating plant, to be constructed by the Standard Oil Co. of New York, has been received at Batoum, one of the principal oil ports of the Soviet Union on the Black Sea, according to advices received by the Amtorg Trading Corp. The capacity of the plant will be upwards of 150,000 long tons of kerosene per year.

The plant, the Amtorg corporation states, is to be built in connection with a contract signed in London December 21 last between the Standard Oil Co. of New York and the Soviet Oil Syndicate (Naphthasyndicate U. S. S. R.) whereby the Standard will purchase up to 500,000 long tons of kerosene in three years.

The contract, it is stated by the Amtorg corporation, proivdes that the Standard is to bui'd the plant and immediately turn it over to the Soviet Oil Syndicate, with the proviso that the Standard is to operate it under lease for three years, with an option for renewal for another three years.

TWO GASOLINE TAXES OPPOSED IN COLORADO

DENVER, Colo., Apr. 23.—Colorado appears to have a serious snarl in the new gas tax bill now up for approval before the governor. This tax will be 3 cents per gallon on all gasoline sales in the State, but a tax of one-tenth of 1 per cent has already been collected in past years by the state oil inspector's office, and this amounted to $119,193 last year.

The Oil Inspection department has collected this tax and wishes to continue to do so even in case the 3-cent tax bill is approved by the governor, but several oil firms have signified their intention of contesting the collection of two taxes in case the 3-cent bill is approved by the governor. It now seems that the proposed 3-cent tax bill may be pigeonholed and the State go through this year on the 2-cent tax as formerly.

SINCLAIR NATURAL GASOLINE

The average daily natural gasoline output of the Sinclair Oil & Gas Co. was 120,480 gallons during 1926, according to the annual report of the Sinclair Consolidated Oil Corp. This represented approximately a 50 per cent increase over the daily average output during 1925. The 1927 output of the company will show another large increase. Since the first of the year the company has added approximately 100,000 gallons daily to its production in the Seminole Field.

ORGANIZES NEW COMPANY

CHICAGO, Apr. 23.—Charles E. Gauer, one of the owners and managers of the Sterling Refining Co. of this city, which was sold to the Cities Service Co., has organized the United Petroleum Corp. to do a general distributing business. He has associated with him G. O. Stone, and temporary offices are located at 1351 First National Bank Building. At present the new organization will handle gasoline and lubricating oils only, but may add fuel oils later. A bulk plant and several service stations will be operated.

A NEW GREASING PALACE

CHICAGO, Apr. 23.—The Alport Oil Co. of this city has bought a site for a service station and "greasing palace" at the corner of Fifty-first Street and Michigan Avenue. The site is 150 by 160 feet, and is reported to have cost the buyers $60,000.

Brief Items for Plant Operators

White Oak Company To Operate Plant At Allen, Oklahoma

The White Oak Refining Co. of Tulsa has purchased the refinery at Allen, Okla., from the North American Car Corp. The plant which was formerly owned by the Mecca Refining Co. has been shut down for some time. Some changes are being made at the refinery, including the installation of new towers. The plant will be ready to resume operations about June 1 on a basis of 2,000 to 2,500 bbls. daily.

The White Oak Refining Co. was recently organized in Oklahoma. W. M. Welch of Tulsa is president of the company. Mr. Welch has been connected with Mid-Continent refining operations for several years. He recently organized the Beaver Refining Co., Ltd. This company is installing a Leamon cracking unit at Coutts, Alberta. J. M. Story is vice president of the White Oak company. The Electric Public Service Co., which recently purchased the natural gasoline plant of the W. M. Welch Co., at Bristow, Okla., is a stockholder in the company. The company's headquarters are located 617 World Bldg., Tulsa. R. L. Walde, who has been superintendent of the Interocean Refining Co.'s refinery at Bristow, Okla., will have charge of the plant operations at Allen.

The plant will operate exclusively on crude from the new Seminole Pool of Oklahoma. The company has made a contract with the Amerada Petroleum Corp. for crude from its leases in Section 15-8-6 of the Bowlegs district. The White Oak company will lay a 4-inch line connecting the plant to the lease, a distance of 25 miles.

BATON ROUGE REFINERY BELIEVED PROTECTED

The Standard Oil Co. of Louisiana, Baton Rouge, La., refinery, is protected against a rise in the Mississippi River at that point as a result of flood, in opinion of officials of company.

The refinery proper is 65 feet above normal level of the river and is on the highest point of land between that point and the mouth of river. On the level, about 40 feet above river, are the minor power units, including pumping equipment. The docks are about 20 feet above normal level and it is expected that the water may rise to the top of the docks. The greatest loss suffered by company is in marketing equipment in the flooded areas. The company does not carry flood insurance but sets up adequate reserve for emergencies of this kind, according to officials.

The Baton Rouge refinery is one of the largest plants of the refining industry, having a capacity of 80,000 bbls. of crude daily.

P. & R. REBUILDING

CASPER, Wyo., Apr. 23.—The Producers & Refiners Corp. is now rebuilding the cracking plant at its Parco, Wyo., refinery. The plant was partially destroyed in an explosion and fire on April 6.

The company also is building 19 new brick houses at Parco. These houses will provide homes for employes who will be moved from Cheyenne to Parco. The Cheyenne offices of the company will be closed as soon as the Parco facilities are completed.

NEW TREATING PLANT

HOUSTON, Tex., Apr. 23.—Keen & Woolf have just put into operation a new treating plant at their refinery near here for the manufacture of filtered lubricating oils. The company is making a full line of filtered pale oils as well as several grades of oil for special uses. The new treating plant embodies the contact filtration process. Three new stills also recently were installed at the refinery.

CONTINENTAL REFINERY IMPROVEMENT PROGRAM

OIL CITY, Pa., Apr. 23.—The Continental Refining Co., operating one of the oldest refineries in United S ates, has just completed an improvement program representing an expenditure of approximately $200,000. The most important feature of the improvement program was the installation of a Foster tube heater, including new fractionating, condensing and heat exchange equipment.

The new pipe still is one of the first of its type ever installed for the reduction of Pennsylvania crude to cylinder stocks. The rated capacity of the pipe still unit when running to 600 steam refined stock is 1,000 bbls. daily. A gas recovery system is also being installed.

The Continental's plant has been operating since 1885. When it first started operating the light ends of the crude—now sold as gasoline—constituted a waste product and were dumped into Oil Creek, there being no other outlet for the product.

In 1885, the by-products of Pennsylvania crude oil were as follows: 68-76 benzine, selling at 1½ to 2½ cents per gallon; 150-degree water white kerosene, selling at 8 to 10 cents a gallon; 120-degree prime white kerosene, selling at 7 to 8 cents a gallon; 110-degree standard white kerosene, selling at 6 to 7 cents a gallon; 18-20-degree gravity tar, "still residue," selling at 1½ to 2½ cents per gallon.

OKLAHOMA CHEMISTS TO HOLD MEETING IN TULSA

A paper on the subject of "The Use of the Modified Iodine Color Method for Control in the Manufacture of Lubricants" will be presented by A. L. Davis, chief chemist of the Empire Refineries, Inc., at the meeting of the Oklahoma section of the American Chemical Society to be held at Tulsa, Saturday, April 30.

Fred Padgett of the engineering department of the University of Oklahoma will present a paper on "The Use of the Microscope in the Petroleum Industry." Other papers to be presented are "Paint," by G. Ensbinger, du Pont company; "How the Oklahoma Section Can Improve Chemistry Teaching in the State," and "The American Chemical Society's Prize Essay Contest in Oklahoma," by C. R. Otto, Central Teachers College, Edmond.

These papers will be presented at the meeting to open at 2:30 p. m., Saturday, April 30, at the Tulsa High School, room C-10. Those expecting to attend all sessions will assemble at the Tulsa High School at 9:30 when an inspection trip will start. This will include several industrial plants in and near Tulsa. A dinner will be held at 6:30 at the Mayo Hotel.

H. T. Bennett, chief chemist of the Mid-Continent Petroleum Corp., Tulsa, is president of the Oklahoma Section. O. M. Smith of Oklahoma A. & M. College is secretary. All chemists are invited to attend the meetings.

AMONG THE TECHNICAL MEN

R. E. Powell, superintendent of the Baytown, Tex., refinery of the Humble Oil & Refining Co. has been connected with the refining industry since 1916.

R. E. Powell

His first employment was at the Montreal, Canada, refinery of the Imperial Oil, Ltd. He served as general refinery foreman and second assistant superintendent of this plant over a period of three years.

In 1919 Mr. Powell was transferred to the asphalt department of the Bayonne, N. J., refinery of the Standard Oil Co. of New Jersey. He continued there until 1921 when he was transferred to the Charleston, S. C., refinery of the company where he supervised the construction of an asphalt plant. Later he was in charge of the plant's operation.

The same year Mr. Powell was transferred to the Baytown refinery of the Humble Oil & Refining Co. in the capacity of general refinery foreman. Shortly afterwards he was made assistant superintendent of the plant and in March, 1922, he was given his present position.

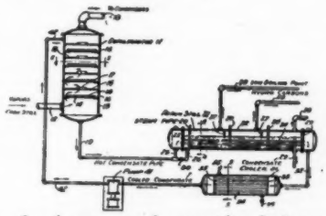
Those who have kept in touch with refinery developments are aware of the changes at the Humble's refinery. A 7,000-bbl. plant five years ago, the refinery now has a rated capacity of 50,000 bbls. daily at the plant which is practically complete in its operations. A special effort has been made to provide ideal living conditions for employes and the refinery is specially noted in that respect in Coastal refining circles.

Mr. Powell takes an active interest in civic work and at present is president of the Tri-City Chamber of Commerce. Previous to his entry into the oil business he was connected for several years with the post office department.

Recent Patents

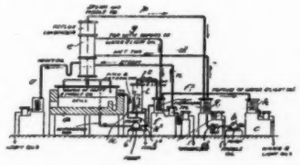
(Additional Patents on Page 196)

1,622,737. Process of Separating Hydrocarbon Fractions. Daniel Pyzel, Piedmont, Calif., assignor to Simplex Refining Co., San Francisco, Calif., a Corporation of California. Filed August 23, 1923. Serial No. 658,910. 6 Claims. (Cl. 196—94.)



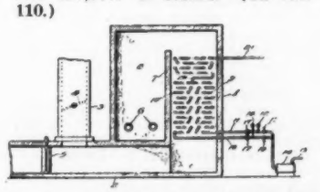
1. A process of separating hydrocarbon fractions from a heated mixture of said fractions in a liquid state which comprises: lowering the partial vapor pressure on a portion of said mixture by injecting therein vapor having a different vapor tension; supplying heat to said portion from the remainder of said mixture, said remainder being held under its initial vapor tension; and removing the mixture of vapors by said injection and heating.

1,622,964. Method of Distillation. John Stanley Morgan, London, England, assignor to Thermal Industrial & Chemical (T. I. C.) Research Co., Ltd., London, England. Filed January 30, 1923. Serial No. 615,963, and in Great Britain November 13, 1922. 4 Claims. (Cl. 196—85.)



1. A method of fractionally distilling a liquid mixture containing more than two constituents, which consists in distilling from the mixture and condensing a lower boiling fraction, passing superheated steam through the higher boiling fraction remaining, cooling the mixture of steam and vapor which leaves the liquid mixture to a temperature adapted to condense the vapor, and then passing the steam through the condensed lower boiling fraction to thereby vaporize a portion of the latter.

1,619,977. Process and Apparatus for Treating Oils. Lyman C. Huff, Chicago, assignor to Universal Oil Products Co., Chicago, a corporation of South Dakota. Filed July 3, 1924. Serial No. 724,077. 5 Claims. (Cl. 196—110.)



5. A process for treating hydrocarbon oil consisting in passing the oil in a plurality of streams during its initial flow through a heatng zone and while being subjected to preliminary heating therein, in thereafter increasing the velocity of the oil during a substantial portion of its flow through the heating zone by uniting said streams prior to the final heating of the oil in the heating zone.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Apr. 26		Apr. 19		Apr. 12	
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06	.06¼	.06	.06¼	.06	.06¼
56-58 450 end point	.06	.06¼	.06	.06¼	.06	.06¼
58-60 450 end point	.06	.06¼	.06	.06¼	.06	.06¼
58-60 437 end point (U. S. Motor)	.06¼	.06½	.06¼	.06½	.06¼	.06½
60-62 400 end point	.06⅝	.06¾	.06¾		.06¾	.07
64-66 375 end point	.07		.07		.07	.07¼
68-70 360 end point	.07½	.07¾	.07½	.07¾	.07½	.07¾
64-66 437 end point (blend)	.06	.06¼	.06	.06¼	.06	.06¼
KANSAS—						
58-60 437 end point (U. S. Motor)	.06½	.06¾	.06½	.06¾	.06½	.06¾
NORTH TEXAS—						
48-50 480 end point (Naphtha)	.06		.06		.06	
56-58 450 end point	.06	.06¼	.06	.06¼	.06	.06¼
58-60 437 end point (U. S. Motor)	.06⅛	.06¼	.06¼	.06½	.06⅛	.06¼
60-62 400 end point	.06½	.06¾	.06½	.06¾	.06¾	
64-66 390 end point	.06¾		.06¾	.07	.06⅞	.07⅛
64-66 375 end point	.06¾	.07	.07		.07	
68-70 360 end point	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 437 end point (blend)	.06	.06¼	.06	.06¼	.06	.06¼
NORTH LOUISIANA—						
58-60 437 end point (U. S. Motor)	.06¼	.06½	.06¼	.06½	.06¼	.06½
ARKANSAS—						
58-60 437 end point (U. S. Motor)	.06¼	.06½	.06¼	.06½	.06½	.06¾
PENNSYLVANIA—						
52-54 Naphtha	.08¼	.09	.09	.09¼	.09½	.09¾
54-56 Naphtha	.08¾	.09	.09	.09¼	.09½	.09¾
58-60 Gasoline	.08½	.08¾	.08¾	.09	.09	.09¼
60 Gasoline	.09¼	.09½	.09½	.09¾	.09¾	.10
62 Gasoline	.10	.10¼	.09¾	.10	.10	.10¼
64 Gasoline	.10¼	.10½	.10	.10¼	.10¼	.10½
CALIFORNIA—						
58-60 437 end point (U. S. Motor) domestic	.04½	.05	.05½	.06	.06	.06½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.06	.06¼	.06	.06¼	.06¼	.06½
56-58 450 end point	.06	.06¼	.06	.06¼	.06¼	
58-60 437 end point (U. S. Motor)	.06¼	.06½	.06¼	.06½	.06½	.06½
60-62 400 end point	.06⅝	.06¾	.06¾	.07	.06¾	.07
64-66 375 end point	.07	.07¾	.07	.07¼	.07¼	.07½
68-70 360 end point	.07½	.07¾	.07¾	.08	.07¾	.08
64-66 437 end point (blend)	.06	.06¾	.06¼		.06¼	.06½

NATURAL GASOLINE

	Apr. 26		Apr. 19		Apr. 12	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¼	.04½	.04¼	.04½	.04¼	.04½
Grade A, 72-79.9, 375 e.p., rec. 90%	.04⅝		.04¾		.04¾	.05
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅛	.04¼	.04	.04⅛	.04	.04⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼		.04⅛	.04¼	.04⅛	.04¼
Grade C, 80-90, 375 e.p., 78%	.03⅞	.04	.04		.04	
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¼	.04½	.04¼	.04½	.04½	
Grade A, 72-79.9, 375 e.p., rec. 90%	.04½	.04⅝	.04¾		.04¾	.05
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅛	.04¼	.04	.04⅛	.04	.04⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼		.04⅛	.04¼	.04¼	.04¼
Grade C, 80-90, 375 e.p., rec. 78%	.04		.04	.04⅛	.04	.04¼
NORTH LOUISIANA—						
Grade AA, 72-79.9, 375 e.p., rec. 90%	.05	.05¼	.05	.05¼	.05¼	.05½
Grade BB, 76-83.9, 375 e.p., rec. 85%	.04¾	.05	.04¾	.05	.05	.05½
Grade C, 80-90, 375 e.p., rec. 78%	.04¼	.04½	.04¼	.04½	.04¼	.04½
CALIFORNIA—						
75-86, 375 390 end point	.06½	.07			.07	.09½
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04½	.04⅝	.04½		.04½	
Grade A, 72-79.9, 375 e.p., rec 90%	.04¾		.04¾		.05	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼		.04	.04⅛	.04⅛	.04¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½		.04¼		.04¼	
Grade C, 80-90, 375 e.p., rec. 78%	.04		.04		.04	

BURNING OIL

	Apr. 26		Apr. 19		Apr. 12	
KANSAS—						
41-43 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04¾
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04⅛	.04¼	.04¼	.04½	.04¼	.04½
42-44 water white Kerosene	.04½	.04¾	.04⅝	.04¾	.04¾	.05
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¼	.04½	.04½	.04¾	04½	04¾
NORTH TEXAS—						
41-43 water white Kerosene	.03⅞	.04¼	.04¼	.04½	.04¼	.04½
ARKANSAS—						
41-43 water white Kerosene	.04½	.04¾	.04¾		.04¾	.05
PENNSYLVANIA—						
43 Kerosene prime white	.06½	.06¾	.06½	.06¾	.06¾	.07
45 Kerosene water white	.06¾	.07	.06¾	.07	.06⅞	.07⅛
46 Kerosene water white	.07¼	.07½	.07¼	.07½	.07¼	.07½
47 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 Mineral Seal	.08	.08¼	.08¼	.08½	.08¼	.08½
CALIFORNIA—						
38-40 water white (high burning test)	.04¾	.06	.05¾	.06½	.05¾	.06½
Engine distillate, 43-45 445 end point	.04¼	.04½	.05½	.06	.05½	.06
Engine distillate, 42-44 480 end point	.04	.04¼	.04¼	.05½	.04¼	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¼	.04½	.04¼	.04½	.04½	.04¾
42-44 water white Kerosene	.04½	.04¾	.04¾	.05	.05	.05¼

FUEL OILS

KANSAS—	Apr. 26		Apr. 19		Apr. 12	
24-26 Fuel Oil	1.05	1.10	1.05	1.10	1.10	1.15
32-36 Gas Oil	.02¾	.02⅞	.02¾	.02⅞	.02¾	.02⅞
38-40 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil	.90	.95	.90	.95	.92½	.95
18-22 Fuel Oil	.95	.97½	.95	.97½	.95	.97½
22-26 Fuel Oil	.95	.97½	.95	.97½	.97½	1.00
24-26 Fuel Oil	.97½	1.00	.97½	1.02½	1.02½	1.07½
26-30 Fuel Oil	1.02½	1.05	1.02½	1.05	1.07½	1.10
28-30 Fuel Oil	1.05		1.05	1.10	1.10	1.12½
32-36 Gas Oil (dark)	.02½	.02⅝	.02½	.02¾	.02⅝	.02¾
32-36 Gas Oil (straw overhead)	.02½	.02⅝	.02½	.02¾	.02⅝	.02¾
36 38 Distillte	.03	.03⅛	.03	.03¼	.03	.03¼
38-40 Straw Distillate	.03¼		.03¼		.03¼	
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	.90	.95	.90	.95	1.05	1.10
32-36 Gas Oil (straw)	.02½	.02⅝	.02½	.02⅝	.02⅝	.02¾
38-40 Straw Distillate	.02⅞	.03	.02⅞	.03	.02⅞	.03
NORTH LOUISIANA—						
18-20 Fuel Oil	1.10	1.15	1.10	1.15	1.15	1.17½
32-36 Gas Oil	.02¾	.03	.03	.03¼	.03	.03¼
ARKANSAS—						
36-38 Distillate	.03	.03¼	.03½	.03¾	.03¾	.04
32-36 Gas Oil (straw)	.02¾	.03	.02¾	.03	.02⅞	.03
16-20 Refinery Fuel Oil	.95	1.05	.95		1.00	1.05
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04⅜	.04¼	.04⅜	.04¼	.04⅜
Fuel Oil	1.50	1.60	1.50	1.60	1.50	1.60
PENNSYLVANIA—						
30-34 Fuel Oil	.05⅞	.06	.05⅛	.05¼	.05⅝	.05¾
36-40 Fuel Oil	.05⅜	.05½	.05⅝	.05½	.05⅞	.06
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	04
27-32 Distillate	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾
*15-20 Fuel Oil, Bunkers (at tide water)	.85	1.00	.92½	1.04	.92½	1.04
15-20 Fuel Oil (cargo lots)	.71	.75	.71	.75	.71	.75
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	1.00	1.05	1.00	1.05	1.05	1.07½
22 26 Fuel Oil (sellers' cars) Group 3	.97½	1.00	1.00		1.02½	1.05
18-22 (Group 3)	.95	.97½	.97½	1.00	1 05	1.07½
16-20 (Smackover)	1.15	1.17½	1.15	1.17½	1.17½	1.20
32-36 Gas Oil (zero)	.02⅝	.02⅞	.02¾	.02⅞	.02¾	.03⅛
32-36 Gas Oil (industrial)	.02½	.02¾	.02⅞	.02¾	.02⅝	.02⅞
36-38 Distillate	.03	.03¼	.03	.03¼	.03¼	
38-40 Straw Distillate	.03¼	.03⅜	.03¼	.03½	.03⅜	.03½

*Bunkers.

LUBRICATING OIL AND WAX

	Apr. 26		Apr 19		Apr. 12	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06½	.06¾	.06½	.06¾	.06	.06½
100 vis., 3 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06½	.07
150 vis., 3 color, 20 25 cold test	.08½	.08¾	.08¼	.08¾	.08½	.09
150 vis., 4 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08½	.08¾
180 vis., 3 color, 23-28 cold test	.10	.10¼	.10	.10¼	.09½	.10
180 vis., 4 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
180 vis., 5 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 3 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
200 vis., 4 color, 23-28 cold test	.10⅜	.10⅞	.10⅜	.10⅞	.10¼	.10⅜
200 vis., 5 color, 23-28 cold test	.10½	.10¾	.10½	.10¾	.10½	.11
240 vis., 3 color, 25-30 cold test	.14	.14¼	.14	.14¼	.13¼	.14
240 vis., 4 color, 25 30 cold test	.13½	.13¾	.13½	.13¾	.13½	.14
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
280 vis., 3 color, 25-30 cold test	.15¾	.16¼	.15¾	.16¼	.16½	.17
280 vis., 4 color, 25-30 cold test	.15¼	.15½	.15¼	.15½	.15¼	.15½
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
Cylinder Stocks:						
600, steam refined, light green	.07½	.10	.07½	.10	.07½	.10
600, steam refined, dark green	.05	.06	.05	.06	.05	.06
190-200 vis. @ 210 Bright Stock	.31	.33	.31	.33	.31	.33
150-60 vis. @ 210 Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.02¾	.03	.02¾	.03	.02¾	.03
PENNSYLVNAIA—						
34 Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
34 Sundebloom Neutral	.08½	.08¾	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.07	.07¼	.07	.07¼	.07	.07¼
150, 3 color	.28¼	.28½	.28¼	.28½	.28¼	.28½
180, 3 color	.31¾	.32	.31¾	.32	.29¾	.30
200, 3 color	.33¼	.34	.33½	.34	.32½	.33
220, 3 color	.35¼	.36	.35¼	.36	.34½	.34½
600, steam refined	.09	.09¼	.09	.09¼	.09¾	.10
635, steam refined	.10¾	.11	.10¾	11	.12¼	.12½
650, steam refined	.12¾	.13	.12¾	.13	.13¾	.14
600, Pennsylvania flash	.17½	.18	.17½	.18	.17½	.18
630, Pennsylvania flash	.28½	.29	.28½	29	.28½	.29
*550, E filtered	.17¼	.18	.17½	.18	.17½	.18
*600, E filtered	.19	.19½	.19½	.20	.19½	.20
600, E filtered	.18	.18½	.18	.18½	.18	.18¼
600, D filtered	.25	.25½	.25	.25½	.25¼	.25¾
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.33	.33½	.34½	.35	.34½	.35
†122-124 White Crude Scale Wax	.03½	.03¾	.03⅜	.03½	.03⅜	.03¾
†124-126 White Crude Scale Wax	.03½	.03⅜	.03½	.03⅝	.03½	.03⅜

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.07½	.08½	.07½	.08½	.07½	.08½
No. 3 color, 200 vis., pale oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 3 color, 300 vis., pale oil	.11½	.12½	.11½	.12½	.11½	.12½
No. 3½ color, 500 vis., pale oil	.13½	.14	.13½	14	.13½	.14
No. 4 color, 750 vis., pale oil	.16	.16½	.16	.16½	.16	.16½
No. 5 to 6 color, 200 vis., red oil	.08½	.09½	.08½	.09½	.08½	.09½
No. 5 to 6 color, 300 vis., red oil	.10	.11	.10	.11	.10	.11
No. 5 to 6 color, 500 vis., red oil	.11½	.12½	.11½	.12½	.11½	.12½
No. 5 to 6 color, 750 vis., red oil	.14½	.15½	.14½	.15½	.14½	.15½
No. 2 color, 200 vis., pale filtered	.13	.14	.14			
No. 2 color, 300 vis., pale filtered	.14	.15	.14	.15		
No. 2½ color, 500 vis., pale filtered	.16	.17	.16	.17		
No 2½ color, 750 vis., pale filtered	.20		.20			
CALIFORNIA—						
130 vis., 2½-3 color	.10½	.11	.10½	.11	.10½	.11
200 vis., 2½-3 color	.11	.11½	.11	.11½	.11	.11½

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

300 vis., 3 -3½ color	.11½	.12	.11½	.12	.11½	.12
350 vis., 3½-4 color	.12	.13	.12	.13	.12	.13
400 vis., 3½-4 color	.13	.15½	.13	.15½	.13	.15½
Red Neutral:						
200 vis., 4½-5 color	.09½	.10½	.09½	.10½	.09½	.10½
300 vis., 5 -6 color	.10½	.11½	.10½	.11½	.10½	.11½
400 vis., 5 -6 color	.12	.13½	.12	.13½	.12	.13½
500 vis., 4½-5 color	.13½	.14½	.13½	.14½	.13½	.14½
500 vis., 5 -6½ color	.12½	.13½	.12½	.13½	.12½	.13½
600 vis., 6½ plus color	.13½	.14½	.13½	.14½	.13½	.14½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Apr. 26	Apr. 19	Apr. 12
Gasoline, U. S. Motor, 58-60 437	.08¾	.09	.09
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14 16, per bbl	1.75	1.75	1.75
*Fuel Oil, Diesel, 28-30, per bbl.	2.40	2.40	2.40
Gas Oil, 28 plus	.06	.06	.06
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07½	.07½	.07½
285 red Paraffin Oil	.13	.13	.13
250 red Paraffin Oil	.12	.12	.12
225 red Paraffin Oil	.11	.11	.11
200 red Paraffin Oil	.10	.10	.10
Refined Wax:			
120-122 a.m.p., per lb.	.03⅞	.04⅛	.04⅛
125-127 a.m.p., per lb.	.04⅛	.04¼	.04¼
130-132 a.m.p., per lb.	.04¾	.04¾	.04¾
135-137 a.m.p., per lb.	.05	.05¼	.05¼
Petrolatum, in bbls.; carload lots, per lb.:			
Dark green	.01⅞	.01⅞	.01⅞
Amber	.03⅜	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.05½	.05½	.05½
Lily white	.07	.07	.07
Snow white	.08⅛	.08⅛	.08⅛

*Lighterage 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Apr. 26	Apr. 19	Apr. 12
Gasoline, U. S. Motor, 58-60, 437, in cases	.2390	.2440	.2440
Kerosene, standard white, in cases	.1615	.1665	.1665
Kerosene, water white, in cases	.1715	.1765	.1765
600 steam refined cylinder stock, in bbls.	.19	.19	.19
635 steam refined	.21	.21	.21
650 steam refined	.23	.23	.23
600 Pennsylvania flash	.27	.27	.27
630 Pennsylvania flash	.34	.34	.34
600 Warren E	.26	.26	.26
600 Oil City E	.24½	.24½	.24½
Light 135 Bright Stock	.44	.44	.44
Dark 135 Bright Stock	.42	.42	.42

LOS ANGELES EXPORT PRICES

	Apr. 26		Apr. 19		Apr. 12	
Kerosene water white	.04	.04¼	.04¾	.05	.04¾	.05
U. S. Motor Gasoline, 53-55 437 e.p.	.06	.06½	.06¼	.06½	.07	.07¼

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927) $1.00
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County ..... $ .95
*Hutchinson County ..... .95
Gray-Wheeler Counties ... See gravity table

*Humble Oil & Refining Co., Magnolia Petroleum Co., Gulf Pipe Line Co. and Kay County Gas Co., March 14.

WEST TEXAS

*Iatan (Same as North Texas)
Crane-Upton-Crockett ..... See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.16 for Howard County crude, effective March 12.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (March 17) $1.00
Bellevue (Feb. 24, 1927) 1.25
Urania (March 16, 1927) 1.00
East El Dorado (March 16) 1.00
Other fields ..... See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A (March 14) $1.20
Grade B ..... See gravity table
*Jennings, La. (March 14) 1.05
†Saratoga, Batson, Dayton (March 14, 1927) 1.20
**Markham (March 14 ..... 1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. **The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (April 7) $1.00
†Mirando (March 14) 1.00
Rockdale-Minerva (Milam County) ... 1.25
*Thrall ....
Callihan (May 15) 1.75
Lytton Springs (Lockhart) See gravity table
Somerset ..... See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo. (March 12) $1.25
Salt Creek ..... See gravity table
Big Muddy (March 12) 1.25
Mule Creek (February 23) 1.30
Grass Creek, light (March 12) 1.33
Grass Creek, heavy ..... .68
Elk Basin (March 12) 1.33
Lance Creek (March 12) 1.33
Poison Spider 1.00
Notches ..... .65
Rex Lake (February 23) 1.10
Osage 1.33
Lost Soldier (contract) (May 17) 1.60
Greybull-Torchlight 1.33
Hamilton Dome 1.35
Cat Creek (Mont.) 1.33
Sunburst (Mont.) (October 5) 1.35
Artesia (March 12) 1.00
Hogback (N. Mex.) (March 14) 1.30

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective March 7)

Penna Grade Oil in New York Transit Line (New York) $2.90
Bradford District Oil in National Transit Lines (Pennsylvania) 2.90
Penna Grade Oil in National Transit Lines (Pennsylvania) 2.80
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia) 2.80
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania) 2.75

(Continued on Page 166)

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	1 Okla., Kans., N. C. Tex., La.-Ark.	2 Smackover, Ark.	3 Stephens, Ark.	4 Wheeler and Gray Counties, (Texas Panhandle)	5 Crane, Upton Crockett Counties (West Texas)	6 Salt Creek, Wyo.	7 Grade B & Light Crude (G. Coast)	8 Somerset (South Central Texas)
Below 24	....	1.00	....	....	....	....	....	....
24 to 24.9	....	1.25	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	.70	....	....	....	....
26 to 26.9	....	....	....	.72	....	....	1.19	....
27 to 27.9	....	....	....	.74	....	....	1.21	....
Below 28	****	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.76	....	1.23	....
29 to 29.9	1.14	....	1.04	.82	.78	1.14	1.25	....
30 to 30.9	1.16	....	1.06	.84	.80	1.16	1.27	....
31 to 31.9	1.18	....	1.08	.86	.82	1.18	1.29	....
32 to 32.9	1.20	....	1.10	.88	.84	1.20	1.31	1.05
33 to 33.9	1.22	....	....	.90	.86	1.22	1.33	1.07
34 to 34.9	1.24	....	....	.92	.88	1.24	1.34	1.09
35 to 35.9	1.26	....	....	.94	.90	1.26	1.37	1.11
36 to 36.9	1.28	....	....	.96	.92	1.28	....	1.13
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.15
38 to 38.9	1.32	....	....	1.00	....	....	....	1.17
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted new schedule April 20, making price below 33 gravity 95 cents per barrel, with 2 cents increase per degree higher in gravity, making 33-33.9 gravity at 97 cents as basis, with a top price of $1.35 for 52 and above.

Oklahoma: Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—(including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs [Southwest Texas], Iatan and Panola [Magnolia only], Currie, Nocona, Moran and Corsicana light): Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only): Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, Gulf Pipe Line Co., March 14.

Column 2—Standard Oil Co. of Louisiana, The Texas Company, Gulf, Atlantic, March 17, Magnolia Petroleum Co. (March 16) posted price of $1.00 for below 24 degrees and $1.15 for 24 and above. Louisiana Oil Corp. posted following prices effective March 16: Below 24, $1.00; 24 to 27.9, $1.15; 28 to 28.9, $1.17; 29 to 29.9, $1.19; 30 and above $1.21.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14.

Column 5—Humble Oil & Refining Co., Kay County Gas Co. and Gulf Pipe Line Co., March 14.

Column 6—Midwest Refining Co., March 12, 1927. All crude over 37 gravity, $1.30 per bbl.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co. which stops at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

****Prices for crude below 28 gravity: Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12, 1927; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree with exception of Humble Oil & Refining Co. which pays $1.13 for crude below 28 degrees gravity.

CALIFORNIA CRUDE PRICES

*Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)

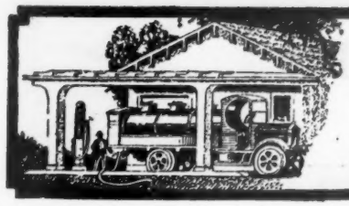
Gravity—	1 Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood	2 Whittier, La Habra, Montebello	3 Kern River, Newhall-McKittrick, Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Coyote	5 Santa Fe Springs	6 Coalinga, Salt Lake	7 Wheeler Ridge	8 Santa Maria, Ventura, Orcutt
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.95	.93	.91	....	.93
31°	1.02	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.05	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 23 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 5—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted only by Union Oil Co.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns April 26.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Chicago dist..	16 0	18 0	...	13 0
Decatur, Ill. ..	16 2	18.2	...	13 1
E. St. Louis ..	16.1	17 35	...	13.2
Joliet	16 4	18 4	...	13 3
Peoria	16.2	18 2	...	13.1
Quincy	14 2	16 2	...	10 9
Davenport, Ia.	18.5	20 5	2 0	13 3
Des Moines....	16 0	18 0	2 0	13.3
Keokuk	18 5	20 5	2 0	13 3
Sioux City	18.1	20 1	2 0	12 9
Duluth, Minn..	19 5	21 5	2 0	13 9
Minneapolis ...	17.2	19 2	2 0	13 9
LaCross, Wis..	19 2	21 2	2 0	14 0
Milwaukee	18 1	20.1	2 0	12.9
Madison	18 3	20 3	2 0	13 1
Detroit, Mich..	18.8	20 8	2 0	14 7
Grand Rapids.	18 7	20 7	2 0	14.6
Saginaw	18 9	20 9	2 0	14.8
Evansville, Ind.	19.0	21 0	3 0	14 0
Ft. Wayne	19 4	21 4	3 0	14 4
Indianapolis ..	19 2	21.2	3.0	14 2
S. Bend	19 4	21 4	3 0	14.4
Fargo, N. D...	20 9	22 9	2 0	15 9
Huron, S. D..	19 0	21 0	3 0	14 9
Sioux Falls....	19.3	21 3	3.0	14 4
*K. C., Mo....	18 0	20 0	3.0	11.6
*Springfield ...	18.8	20 8	3 0	12 5
*St. Louis	17 5	19 5	2 5	12 3
*St. Joseph	18 5	20 5	3 0	12 2
Wichita, Kans.	16 8	18 8	2.0	11.8
Bartlesville, Ok.	17.0	19 0	3.0	11 8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	17 0	11.75
V. M. & P. naphtha.....	19 0	13 75
Cleaner's naphtha	19 0	13.75
Stanisol	20 0	.....

Tankwagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL

Less than 100 gallons.....	10 0
100 to 799 gallons.....	9.0
800 or more gallons	8 5

Tankwagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

In addition the following quantity discount schedule is in effect on monthly tankwagon deliveries of gasoline 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. In the Chicago district purchases of 750 to 2,000 gallons a month discounted one-half cent; and, 2,000 to 6,000 gallons, three-quarters cent. If the quantity bought during the year is 12 times the monthly agreed purchases the discount is paid or credited on the entire quantity less monthly payments.

Monthly service station deliveries of 200 gallons or more, and annual deliveries of 2,400 gallons or more are discounted 2 cents.

*State tax 2 cents; remainder city tax.

SOUTHWESTERN DISTRICT
*Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Dallas, Tex. ..	13.0	15 0	3 0	15.0
Fort Worth	14 0	17.0	3.0	13 0
Houston	16 0	19 0	3 0	15.0
San Antonio ..	13 0	16.0	3 0	11 0
El Paso	17 0	19 0	3 0	16 0
Texarkana	15 0	18 0	3 0	15 0
Muskogee, Ok..	16.0	19.0	3 0	10 0
Okla. City	16.0	19 0	3 0	10 0
Tulsa	16 0	19 0	3.0	10 0
Little Rock	17 0	20 0	4 0	12 0
Ft. Smith, Ark.	17.0	20 0	4.0	12 0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, ½c; over 2,000 gallons, ¾c; over 3,000 gallons, 1c; over 4,500 gallons, 1¼c; over 6,000 gallons, 1½c; over 9,000 gallons, 1¾c; over 10,000 gallons, 2c. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 300 gallons a month, 1c; over 300 gallons a month, 1¼c; over 400 gallons, 1½c; over 500 gallons a month, 1¾c; over 600 gallons, 2c. The same rule applies for annual purchases as in the tankwagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
*New Orleans..	17.5	18.5	3 0	14 0
Baton Rouge ..	14.0	17 0	2 0	12 5
Alexandria	15 0	18 0	2.0	14 0
LaFayette	15 0	18 0	2 0	13 5
Lake Charles..	15 5	18 5	2 0	14 0
Chattanooga ...	19 5	22 5	3 0	15.0
Shreveport, La.	14 0	17 0	3.0	12.0
Knoxville ...	19 5	22 5	3 0	15 0
Memphis, Tenn.	17 0	20.0	3.0	14 0
Nashville	16.5	19.5	3.0	15.0
Bristol	19 0	22 0	3 0	14 0
Lit. Rock, Ark.	17.0	20.0	4.0	12.0

*Tax of 3c includes city tax of 1c.
*Louisiana kerosene prices include 1-cent state tax and 1 cent parish tax.

OHIO
Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
All Ohio points	18 0	20 0	3.0	15.0

SOUTHERN DISTRICT
Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlanta, Ga....	20 0	23.0	4.0	16 0
Augusta	20 0	23 0	4 0	15 0
Macon	20 0	23.0	4 0	16 0
Savannah	18.0	20.0	4.0	15.0
Birm'ghm, Ala.	20 0	23 0	4.0	15.5
Mobile	19.0	22 0	4 0	15 0
Montgomery	21 0	24 0	5 0	16 5
Clarksd'le, Miss.	19 0	22 0	4 0	13 5
Jackson	19.0	22.0	4.0	14 5
Natchez	18 5	21 5	4 0	14 0
Gulfport	20.5	23 5	6 0	14 0
Vicksburg	18 5	21 5	4 0	14.0
Jack'ville, Fla..	18 0	21 0	4 0	14 0
Miami	20.0	23.0	4 0	15 5
Pensacola	19 0	22 0	5 0	15.0
Tampa	18.0	21 0	4 0	14.0
Covington	20.0	23 0	5 0	15 5
Louisville	19 0	22 0	5 0	15 0
Lexington, Ky.	18.0	21.0	5.0	15 5

In addition to the state tax of 2c on gasoline, Montgomery has city tax of 1c on gasoline and ½c on kerosene. Prices in Georgia include ½c inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125c; in Alabama, an inspection fee of ½c on kerosene only. Pensacola tax includes 1c city levy. Gulfport tax includes privilege tax of 2c in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND
Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Pittsburgh, Pa.	16 0	*21 0	...	14 0
Philadelphia ..	16 0	20.0	...	14 0
Scranton	16.0	*21 0	...	14 0
Allentown	16 0	*21 0	...	14 0
Altoona	16.0	*21.0	...	14.0
Erie	14 0	19 0	...	14 0
Dover, Del.	19.0	22 0	2 0	14 0
Wilmington	19.0	22 0	2.0	14 0
Spring'd, Mas..	19 0	21 0	...	16 0
Worchester	19.0	21.0	...	16 0
Boston	19 0	21 0	...	15 0
Providence, R.I.	20 0	22 0	...	16 0
Hartford, Conn.	21 0	23 0	2 0	16.0
New Haven	21 0	23 0	2 0	16 0

*Includes tax of 2 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

ATLANTIC COAST DISTRICT
Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlantic City..	16 0	....	...	14 0
Newark, N. J ..	16.0	18.0	...	14 0
Annapolis, Md.	20 0	....	4 0	14 0
Baltimore	20 0	23 0	4.0	10 0
Cumberland	20 0	23 0	4.0	14 0
Washington ..	18 0	21 0	3.0	12.0
Danville, Va...	20 5	....	4 5	14 0
Norfolk	20.5	23 5	4 5	14.0
Petersburg	20 5	23 5	4 5	14 0
Roanoke	20 5	23.5	4.5	14 0
Richmond	20 5	23 5	4 5	14 0
Charleston, W. Va.	19.5	22.5	3 5	14 0
Keyser	19.5	....	3 5	14 0
Parkersburg ..	19 5	22 5	3 5	14.0
Wheeling	19 5	22 5	3 5	14 0
Charlotte, N. C.	20 0	23 0	4 0	14.0
Hickory	20.0	23 0	4 0	14.0
Mt. Airy	20.0	23 0	4 0	14 0
Salisbury	20 0	23 0	4 0	14.0
Charl'stn, S. C.	20.0	23 0	5 0	14 0
Columbia	20 0	20 0	5.0	15 0

PACIFIC COAST DISTRICT
Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
San Francisco..	11 0	15 0	2.0	15 5
Los Angeles...	08 5	10.5	2 0	15 5
Fresno	11 0	15.0	2 0	17 5
Reno, Nev.	18 0	23 0	4 0	19 0
Portland, Ore..	14 0	18 0	2 0	16.5
Seattle, Wash..	13 0	17.0	2 0	16.5
Tacoma	13 0	17 0	2.0	16 5
Spokane	15.0	19 0	2 0	20 5
Phoenix, Ariz..	19 0	23.0	3.0	20.5

NEBRASKA
Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Omaha	16 25	19 25	3 0	13.25
McCook	19.75	21 75	2 0	14 75
Norfolk	18 0	20 0	2.0	13 75
N. Platte	19.75	21 75	2 0	14 50
Scottsbluff	19.25	21.25	2.0	14.00

NEW YORK AND PART OF NEW ENGLAND DISTRICT
Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Albany, N. Y..	19 0	21 0	...	16 0
*New York ...	19 0	23 0	...	16 0
Buffalo	18 0	21 0	...	14 0
Rochester	17 0	20 0	...	14.0
Syracuse	19 0	21 0	...	16 0
Boston, Mass...	19 0	21 0	...	15.0
Augusta, Me...	22 0	26.0	3 0	16.0
Manchester, N. H.	21 0	23.0	2 0	16.0
Burlington, Vt.	21 0	23 0	2.0	16.0

*Price in steel barrels.

ROCKY MOUNTAIN DISTRICT
Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Denver, Colo...	17 0	17.0	2.0	15 5
Pueblo	17 0	18.0	2 0	15 5
Grand Junction	20 5	22 5	2 0	19 0
Casper, Wyo...	18.0	20 0	3.0	14 0
Cheyenne	18 0	20 0	3.0	15 5
Butte, Mont...	22 0	22 0	3 0	19 0
Helena	22 0	24.0	3 0	19 0
Salt Lake, Utah	21 0	23 0	3 5	17 0
Boise, Idaho...	23 5	25.5	4 0	19 0
Twin Falls....	23 5	25.5	4 0	19.0
Albuquerque, N. M.	22 0	25 0	5.0	18.0

TANK WAGON PRICE CHANGES

April 9—Standard Oil Company of Kentucky reduced the kerosene tank wagon ½ cent at Covington and Lexington, Kentucky.

April 11—Standard Oil Company of Kentucky reduced the gasoline station price 2 cents at Lexington, Kentucky.

April 19—Standard Oil Company of Kentucky reduced the gasoline tank wagon and station prices 2 cents at Savannah, Georgia.

April 20—Atlantic Refining Company reduced the gasoline tank wagon and station prices 1 cent throughout their territory except Erie, Pennsylvania, and reduced the kerosene tank wagon 1 cent in Pennsylvania and Delaware.

April 20—Standard Oil Company of Kentucky reduced the gasoline tank wagon 2 cents at Lexington, Kentucky.

April 21—Standard Oil Company of New York reduced the gasoline tank wagon and station prices 2 cents at Buffalo and Rochester, New York.

April 22—Standard Oil Company of Kentucky reduced the gasoline tank wagon and station prices 1 cent at Covington, Kentucky.

PRESENT CONDITIONS IN RUMANIAN FIELD

By Charles E. Kern

Washington Bureau. The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.—Rumania increased both its production of crude oil and its exportation of petroleum products in 1926, and the financial returns for that year, as indicated by preliminary calculations of the major companies, are almost as satisfactory as those of 1925, in spite of declining prices, according to the minerals divisions, Department of Commerce. This development, in spite of inadequate transportation, high taxes and a reduction of profits as the result of a depreciating exchange.

The beginning of 1927, however, has not indicated any definite prospect of relief from the more trying of the drawbacks to transportation and sale, and January production, while larger than that for January, 1926, showed a perceptible decrease from the crude output of November and December.

Production in 1926 reached 3,241,805 tons, in spite of a general depression in the industry. Exports increased also from 783,285 tons in 1925 to 1,494,430 in the following year, the most marked advance being in exports of residues, which include gas and fuel oils in the Rumanian classification; these shipments totaled 146,309 tons in 1925 and 498,572 in 1926. This is in spite of weather which has seriously interferred with both field work and transportation in the fall and winter. Transportation is, in fact, reported to be unequal to caring for the large output of recent years, even with normal weather conditions.

Although the bulk of the Rumanian production is from private concessions (1,428,000 tons of the 2,313,000 produced in 1925), the increase has been more rapid in the state fields in recent years. Their contribution to total production has increased from 23 per cent in 1921 to 38 per cent in 1925. The area under exploitation, in both state and private concessions, is gradually increasing but does not yet approach the amount granted; at the close of 1925 operations affected only about 7.7 per cent of the territory covered by concessions. This condition is mostly in the private concessions; state concessions, amounting to about 5 per cent of the total, are more generally under exploitation. There is a pronounced increase in drilling activities on both state and private fields, but there, as in production, the curve of increase is much more pronounced in the former. Successes with deep drilling methods have been credited with the increases in output.

American and Dutch-Shell companies have shipped the greater part of the petroleum products exported in recent years, but French capital has entered the Rumanian industry recently in increasing quantities and has been estimated as constituting 20 per cent of all the investment there in 1926.

THE TEXAS COMPANY

HOUSTON, Tex., Apr. 23.—The formality of surrendering its Texas charter and transferring more than 99 per cent of the stock to a new corporation chartered under the laws of Delaware was accomplished at a meeting of stockholders of The Texas Company here. The new corporation will be known as The Texas Company of Delaware and is capitalized at $150,000,000. The transfer from Texas to Delaware was authorized by the shareholders to give the company greater expansion than is permitted under the Texas laws. No change was made in directors or executives.

R. B. MELLON ELECTED DIRECTOR

PHILADELPHIA, Pa., Apr. 25.—Richard B Mellon of Pittsburgh has been elected a director of United Gas Improvement Co. in place of Morris W. Stroud, resigned.

CRUDE OIL PRICES

(Continued from Page 165)

Penna Grade Oil in Buckeye Pipe Line Lines (Ohio).....	2.60
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) March 16....	1.40
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (March 17)....	1.35
Corning 38-cent grade oil in Buckeye Pipe Line Co.'s lines (March 17) ...	1.40
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) March 16.....	1.50
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky)	.95
Keister (Pennsylvania)	1.10

MIDDLE WESTERN STATES
Ohio Oil Co.
(Effective March 14)

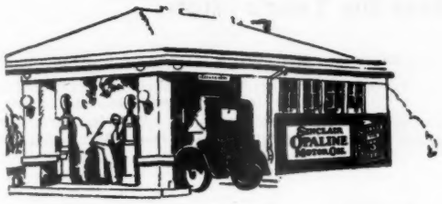
Lima	$1.71
Wooster	1.77
Illinois	1.60
Indiana	1.43
Princeton	1.60
Plymouth	1.39
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.35
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (March 16)..	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927).....	1.50
†Clay County, Tennessee (November 18)	2.25
‖Oil Springs (Canada)	2.10
‖Petrolia (Canada)	2.11

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
‖Posted by Imperial Oil Co., Ltd.

MEXICO
(Effective May 13)

*Tuxpam light (f.o.b. Mex. ports).....	$1.35
†Panuco heavy (f.o.b. Mex. ports).....	1.15
Tuxpam (New York)	2.15
Panuco (New York)	1.80

*Plus 32.338c tax. †17.631c tax.



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Oil Securities Were Active and Lower

Chesebrough at New High and Prairie Pipe Line Notable Exceptions. Vacuum Steady Near the Year's High

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 25.—Oil securities were active and lower during the past week. Marland and Phillips Petroleum were particularly active. Many new low prices were registered for this year in Independent and Standard Oil stocks. As usual there were exceptions to the general trend including Chesebrough Manufacturing which rose to a new high for all time of 95 and Prairie Pipe which advanced to 165½. Vacuum Oil was steady near the year's high.

Reduced crude oil prices do not have a tendency to discourage operators in the field who are after and have some chance of getting big flush wells, of the type coming in at Seminole, and some other fields. If the predictions of some leading oil men are true the oil industry will run head on into legislation designed to control crude oil production automatically. The belief is growing steadily in some quarters that the present situation will culminate in agitation for some form of legislation to curb production.

Middle States Oil

The income of the Middle States Oil Corp., associated and affiliated companies for the year ended December 31, 1926, totaled $2,270,904, comparing with $1,986,788 in 1925. After payment of claims, interest, receivers' and counsel fees and other disbursements there was an unexpended balance of $1,014,982, against $919,681 in the previous year. The company has approximately 54,666 acres under lease, of which 12,739 acres are producing.

The development of the Middle States Oil Corp. in the Seminole area of Oklahoma since the first of the year is outlined in the report issued by receivers, Joseph Glass and Joseph P. Tumulty. The company owns five-eighths interest in an 80-acre lease in this area, where seven wells have been completed with average flow of 15,573 bbls. daily the first 10 days of April, in which net interests of the Turman Oil Co., the Middle States Oil subsidiary, was 10,125 bbls.

Total claims filed against the company, amounting to $5,217,802, exclusive of government claims and claims in connection with security issues, were eliminated and reduced without payment to $2,970,218, and were further reduced by payment to $1,307,388, leaving balance remaining undisposed of $940,194 on December 31, 1926. The suit of J. Webster Manning against the Middle States Oil Corp. for appointment of a receiver in the courts of Delaware has been dismissed by Chancellor Wolcott in the Chancery Court of Wilmington, with costs of suit against the complainant.

Phillips Petroleum

At the annual meeting of the Phillips Petroleum Co., President Frank Phillips stated that profit from the sale of stored oil in the first quarter of last year was $2,000,000 larger than the same period this year.

"As average prices for the first quarter," he said, "were substantially in excess of present prices, it is expected that second quarter earnings will be less." He added his opinion that the oil industry will recover from the present depression as it has heretofore.

Regarding current operations, he said: "On account of present overproduction in the United States, the company has suspended all drilling, except wells necessary for the protection of properties. It is also storing all possible oil and gasoline above contract sales and has a large amount of empty steel storage tanks available for this purpose."

In the first quarter of 1927 the company produced 76,541 bbls. gross and 56,358 bbls. net, daily, an increase of 125 per cent over the first quarter of 1926. Natural gasoline plants number 43, with two others under construction, with daily production averaging 494,000 gallons for the quarter, an increase of 19 per cent. Dry gas sales averaged 198,400,000 feet daily, an increase of 23 per cent.

Mr. Phillips added that the company has received $57,769,533 from stockholders, has paid $21,637,061 in dividends and reinvested $92,191,307 from surplus and reserves.

The retiring directors and officers were re-elected.

Plymouth Oil

The report of the Plymouth Oil Co. for the year ended December 31, 1926, shows consolidated net profit of $8,925,281 after depletion, depreciation and Federal taxes. Stock outstanding amounts to 1,050,000 shares of $5 par value.

The consolidated income account for the year ended December 31, 1926, follows:

Gross	$14,716,323
Expenses	4,027,089
Balance	$10,689,234
Depletion	320,474
Depreciation	548,998
Federal taxes	894,481
Net profit	$ 8,925,281

The surplus account follows: Credit balance January 1, 1926, $2,384,079; add net profit for 1926, $8,925,281; total, $11,309,360; deduct: dividends paid to minority interest by Big Lake Oil Co., $1,725,000; dividends paid by Plymouth Oil Co, $4,987,500, and organization expenses, $11,126; total surplus, January 1, 1927, $4,585,734.

White Eagle Oil

The White Eagle Oil & Refining Co. reports for the quarter ended March 31, 1927, profit of $388,006, after expenses and miscellaneous charges, but before reserves for depreciation, depletion and Federal taxes, compared with profit of $416,915 in the first quarter of 1926.

The income account for the quarter ended March 31, 1927, compares as follows:

	1927	1926
Sales	$3,455,032	$3,220,628
Costs and expenses	3,027,310	2,783,105
Operating profit	$ 427,722	$ 437,522
Other income	74,548	65,837
Total income	$ 502,270	$ 503,360
Miscellaneous charges	114,264	86,445
*Profit	$ 388,006	$ 416,915

*Before depreciation, depletion and Federal taxes.

Union Tank Car

At the directors' meeting following the annual stockholders' meeting of the Union Tank Car, held at Chicago, the following officers were elected: L. J. Drake, president; A. E. Smith, vice president; B. C. Graves, vice president; E. L. Gridley, vice president, secretary and treasurer. Since it was decided not to elect a chairman of the board, L. J. Drake, president, automatically will act in that capacity.

T. P. C. & O. Directors

All directors were re-elected at the annual meeting by the Texas Pacific Coal & Oil Co., except J. C. Baldwin, who was succeeded by R. Seibel. On the executive committee C. E. Mitchell succeeded Mr. Baldwin and was also elected vice president and treasurer to succeed E. J. Marston, who was elected president. Mr Marston in that post succeeds J. R. Penn, who was elected chairman of the executive committee.

Large Capital Increase

A special meeting of stockholders of the Lago Oil & Transport Corp. has been called for April 29 to vote on a proposal to increase the authorized capital stock from 4,000,000 shares to 5,500,000 shares. In a letter to the stockholders, President F. H. Wickett said:

"Continued developments in the oil fields of Venezuela and other South American countries and recent investigations by our officers and by geologists in the employ of your corporation have indicated the possibilities for profitable expansion.

"Your directors, therefore, feel it advisable that the corporation have an adequate amount of unissued stock available for the acquisition and operation of additional properties in those countries and for general corporate purposes. As practically all of the present authorized stock of the corporation has been issued, your board has recommended the increase of 1,500,000 shares."

ALLIE SMITH KILLED

HOUSTON, Tex., Apr. 23.—Allie Smith, aged 44 years, was killed in an automobile accident near Greenville, Tex. He was driving from Shreveport, La., to the Panhandle fields. The car stuck in the mud. Mr. Smith was working at the rear and the car was backed over him, crushing his breast. He was associated with his brother, Claude Smith, as a contractor, and was well known in all the Texas and Louisiana fields.

CRUDE STOCK INCREASE

Pipe line and tank farm gross domestic crude oil stocks east of the Rocky Mountains increased 4,962,000 bbls. in the month of March, according to returns compiled by the American Petroluem Institute from reports made to it by representative companies. The net change shown by the reporting companies accounts for the increases and decreases in general crude oil stocks, including crude oil in transit, but not producers' stocks.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Apr. 25	Clos. Quot. Apr. 18	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.	...	28¾	28⅝	37⅝	30⅝	32⅞	24¾	..	..
Atlantic Ref., com.	100	110	112	117⅝	107	128⅝	97	117½	96½
Barnsdall "A"	25	26⅝	28	35½	26⅜	32½	23½	32½	18⅝
California Pet., com.	25	24⅝	24⅜	32⅜	24⅜	38⅛	30⅞	34⅜	23⅜
Houston O'l	100	109	106⅞	124⅝	60⅛	75	50¼	85	59
Independent Oil & Gas	..	19⅛	21⅜	32⅜	19⅛	34	20¼	41⅜	13⅛
Louisiana Oil	10	13	13	18⅛	12⅝	19⅝	12	23⅜	13⅜
Maracai o	..	15	*15	22⅜	15	27⅝	18⅝	35½	20⅜
Marland	..	38	41⅛	58⅛	37⅛	63⅝	49⅛	60¼	32⅝
Mid-Continent Pet.	..	31	31⅝	39⅝	30⅞	41	25⅞	38	25⅝
National Supply	50	83⅜	86⅛	95⅝	82½	84⅞	55⅛	71	54⅜
Oil Well Supply	25	34	34½	40⅜	31¼	36	30	38	33⅜
Pan. Amer., B.	50	57	57⅜	65⅞	57⅛	72⅜	56⅛	83⅞	59½
Pan. Am., Western B.	..	19⅞	20⅛	37⅞	26⅞	46	34	94⅜	37¼
Phillips Pet.	..	41⅞	44¼	60¼	41½	54⅞	42½	47⅛	36¼
Producers & Refiners	50	24⅝	24⅞	32	16⅝	26	11	32⅝	12½
Pure Oil, com.	..	26⅜	27½	32⅝	26⅜	31	25⅝	33¾	25½
Royal Dutch, N. Y., sh.	13.40	49⅜	49¼	54½	50	57⅜	49⅝	57⅜	48¼
Shell Transport	10	*42	*43	49	44½	48⅞	42	49	39⅝
Shell Union, com.	..	27½	27	31⅝	26⅞	30⅞	24	28⅜	21⅝
Simms Pet.	10	18	17⅝	22⅜	18⅞	28⅝	16½	28½	17⅜
Sinclair Consolidated	..	17	17⅝	22⅝	17⅝	24⅜	16⅜	24⅞	17
Skelly Oil	25	27	27⅜	37⅜	26⅞	37½	27	32½	21⅜
Standard of California	25	52⅜	54	60⅜	52⅜	63½	54	67¼	52½
Standard of New Jersey, com.	25	36½	36¼	41⅜	36	46⅜	37½	47½	38⅜
Standard of New York	25	30⅜	31	34½	31	47¼	30⅝	48⅝	40
Sun Oil Co.	..	32	32	34⅞	30	41⅜	30⅛	43⅞	38½
The Texas Company	25	45½	42⅜	58	42⅜	58	48	55	43⅜
Texas Pacific Coal & Oil	10	13	13⅛	16⅜	13	19½	12⅛	23⅜	11
Tide Water Oil	25	*23½	*24	29¾	27	39¼	27	..	..
Transcontinental	..	3⅜	4	5	4⅛	5½	3	5⅝	3½
Union Oil of California	25	40½	40⅝	56½	39⅝	58⅝	37⅛	43⅝	33⅛
Union Tank, com.	100	*107	108	112½	95	120⅜	84⅛	134	118
White Eagle O. & R.	..	22⅜	24	27½	22	29⅝	25⅛	21⅜	25⅝
Standard Oils									
Anglo-Amer. O'l	£1	19⅛	18⅝	21⅝	18⅝	19⅜	16⅛	26⅜	17½
Borne Scrymser	25	*55	*51	69	53¼	75	65	‡240	205
Buckeye Pipe Line	50	50	49⅛	48½	45	59½	47⅝	72	63½
Chesebrough Mfg. Co.	25	94⅜	86	95	76½	81⅛	63	74	48¾
Continental	10	18	18⅝	22⅝	18	25⅞	19¼	31⅛	21⅞
Cumberland Pipe Line	100	*91	95	137	106	137	102	156	128
Eureka Pipe Line	100	*50½	*51½	51¼	47	53⅜	42	96	61¼
Galena Signal, com.	100	11	11	13½	10¼	32½	9⅞	68⅛	23½
Humble O. & R. Co.	25	58½	59	62⅝	54	99⅝	52	99	42½
Illinois Pipe Line	100	140	139	141	123⅜	144	131	154½	124
Imperial Oil	..	44	42⅛	46	37⅜	39⅜	32½	39¼	27¼
Ind. Pipe Line	50	*66⅛	67	69½	61	68	52¼	84	87½
International Pet. Co.	10	31	30⅞	34⅝	30⅛	35¼	28⅜	25⅜	22¼
National Transit Co.	12.50	14½	14⅜	14	13⅜	20⅜	27½	25½	16½
New York Transit	100	*31½	*32½	36	31¼	51½	27¼	79	50
Northern Pipe Line	100	*75	*75½	79¼	70	80½	64	88	67½
Ohio Oil Co.	25	55⅝	*56⅜	64¼	57½	67⅜	55⅝	75¼	60
Penn-Mex Fuel	25	*16½	*13	19	16½	24¼	15	44	19
Prairie O'l & Gas	25	47¼	47	55½	48¼	60¼	48	65½	45⅞
Prairie Pipe Line	100	167¾	164½	165½	132	137½	122½	129¾	105
Solar Refining Co.	100	180	182	201⅛	185	212	184½	259	200
So. Penn Oil	25	*36½	36¼	41⅝	35½	50	35	‡197	139
S. W. Pa. Line	100	*61	64	62½	55½	56	47½	84	50
Southern Pipe Line	50	*18	*18	27¾	15½	27	24	‡103	63
Standard of Indiana	25	65⅝	66	74¼	66⅛	10½	61⅝	70⅜	69½
Standard of Kansas	25	17	17½	20⅞	15⅝	36½	16½	46	30¼
Standard of Kentucky	25	113⅞	113¼	122¼	114⅛	134⅝	108	137	114⅝
Standard of Nebraska	25	*46	47¼	49½	46¼	51½	42	‡270	231
Standard of Ohio, com.	100	84	85	254	335	362	192½	369	338
Swan & Finch, com.	25	16	*16	16	15	21	18	27	12
Vacuum Oil	25	110¼	115	116½	95½	109⅝	94½	109½	80½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	*81	87⅝	96½	92¼	95	82½	98¼	63⅛
Tidewater Associated	..	16½	17⅛	23½	16½	17	21	..	..

*Bid, no sales. ‡Old stock. †New stock.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Apr. 25	57.02	Mar. 21	58.03	Feb. 14	61.13
Apr. 18	57.42	Mar. 14	59.26	Feb. 7	60.51
Apr. 11	57.37	Mar. 7	59.34	Jan. 31	60.09
Apr. 4	56.62	Feb. 28	60.83	Jan. 24	59.89
Mar. 28	58.51	Feb. 21	60.26	Jan. 17	60.38

TEXAS PANHANDLE

(Continued from Page 42)

400 bbls. initially. In wildcat territory, Prairie Oil & Gas Co.'s No. 1 William Yake, Section 35, Block 47, was dry and abandoned at 3,290 feet. The well had a show of oil at 2,818-75 feet, was plugged back to 2.875 feet and shot with 60 quarts at 2,862-75 feet without results.

American Refining Co.'s No. 6 J. W. Weatherly, Section 19, Block Y, was shot with 60 quarts and is flowing and swabbing 250 bbls. daily from lime pay at 2.885-2,995 feet. Cockrell & McIlroy Oil Co.'s No. 1 E. Cockrell, Section 1, Block B-3, was completed in 1 foot of lime topped at 2.850 feet and is flowing 2,520 bbls. a day and making 25.000,000 feet of gas. The well was the banner completion of the week in Panhandle and started off at the rate of 212 bbls. an hour. Devonian Oil Co.'s No. 8 Johnson Brothers, M. Whitley Survey, is flowing and swabbing 250 bbls. daily after a 120-quart shot in lime at 2,930-60 feet.

McMan Oil & Gas Co.'s No. 1 E. Cockrell, southeast part of their lease out of the western part of Section 2, Block B-3, D. & S. E. Survey, was another big well in that area. It had the pay in lime topped at 2.958 feet and drilled to 3.090 feet. The well was shot with 270 quarts at 2,958-3 028 feet and started off at the rate of 114 bbls. an hour. It flowed at that rate for 30 minutes and dropped to 60 bbls. an hour for nine hours and was completed flowing 1,200 bbls. daily. Minnehoma Oil Co. and Kistler's No. 3 Johnson Brothers, Section 20, Block Y, was shot with 40 quarts in lime at 3,000-20 feet; total depth 3.031 feet. The well was swabbing 250 bbls. a day before the shot and responded making 1,800 bbls., 6 per cent salt water. Two wells were completed on the Prairie Oil & Gas Co. and associates' Johnson Brothers "B" lease, Section 69, Block 46. No. 7 had the pay in lime at 2,865-2,900 feet and had an initial production of 810 bbls. for the first 10 hours and 2,640 bbls. for the first 24 hours. No. 11 had the pay at 2,750-2,845 feet and is making 250 bbls. daily.

Gray County

After showing for an oil well, The Texas Company's No. 1 E. M. Osborne, Section 108, Block 3, was completed as a 10,500,000-foot gas well at 2,855 feet. The well showed for oil at 2,485-2,525 feet and was shot with 80 quarts without results. The well made 9,000,000 feet of gas at 2,843 feet and was increased when drilled to total depth.

Moore County

Moore County's single completion was a deep gas well. It was Amarillo Oil Co.'s No. 1 Masterson, Section 59, Block O-13, and is making 5,000,000 feet of gas at 3,060-3,135 feet; total depth 3,-192 feet.

DAILY AVERAGE PRODUCTION

AMARILLO DISTRICT
Week Ending April 23, 1927
Hutchinson County

Company—	Wells	Daily av. This wk.
Antelope Creek Oil Co.	1	15
Alaska Pet. Co.	1	10
Amerada Pet. Corp.	9	660
American Ref. Co.	7	310
Apex Oil Co.	2	470
Atlantic D. P. Co. (was Grimes & Watts)	1	35
Badger Oil Co.	2	70
Bain et al	1	0
Barnsdall Oil Co.	2	180
R. G. Barnum	1	5
Black Diamond Oil Co.	1	5
Block Y Pet. Co.	1	0
Blockins & Kistler	2	150
Buffalo Oil Co.	2	75
Canadian River Oil Co.	6	240
Center Dome Oil Co.	2	10
Centerfield Oil Co.	1	5
Coble-Whittenburg	4	350
Continental Oil Co.	1	0
Currie Bros. & J. R. Phillips	4	715
Cockrell & McElroy	6	970
Collier & Taylor	1	10
Delmar Oil Co.	2	25
Derby Oil Co.	8	2,025
Devonian Oil Co.	9	545
Dixon Creek Oil Co.	40	6,900
Dominion Oil Co.	1	10
Double Five Oil Co.	1	30
Donald Oil Co.	1	5
Douglas Oil Co. and Cline	2	10
E. J. Dunnigan et al	2	165
Echo Oil Co.	3	1,835
Empire Gas & Fuel Co.	27	2,700
Fly Blackburn Oil Co.	2	60
Four Y Oil Co.	1	0
Franterhouse & Wetzel	1	60
Gates Oil Corp (F. E. Kistler)	4	215
Goldelline Oil Co.	5	465
Gopher Oil Co.	1	5
Golding & Phillips	1	5
Gulf Prod. and Panhandle Ref.	54	5,695
Gulf Prod. Co.	36	4,640
L. R. Hagy	1	0
Heywood et al (Prairie et al)	1	10
J. K. Hughes Dev. Co.	22	1,410
Holmes, Currie & McKnight	3	150
W. H. Holmes	2	170
Homestead Oil Co.	1	15
Hutchinson Co. Oil Co.	1	5
Dan A. Japhet	5	350
Julian Pet. Corp. (Canyon)	5	840
Kistler Oil Co.	3	490
Kistler & Lenix	2	460
Lenix Oil Co. et al	1	40
J. H. Lenix	1	0
Lenix & Patterson	2	300
Lucky 10 Oil Co.	4	310
Magic 80 Oil Co.	1	15
Manhattan Oil Co.	1	85
Marland Oil Co.	59	3,250
Midwest Explin. Co.	20	3,510
Minnehoma Oil and Kistler	3	910
McMan Oil & Gas Co.	22	2,415
McIlroy & Herring	6	660
S. D. McElroy	4	250
S. D. & W. W. McIlroy	8	700
McIlroy Bros. et al	4	575
J. H. Middleton	4	200
Mudge Oil Co.	1	0
Fain-McGaha Oil Corp.	2	205
Newby Oil Co.	1	50
New Domain Oil Co.	3	95
Pantex Oil Co. (Westex)	9	1,250
Phillips & Heywood	3	680
Panhandle Oil Co.	1	0
Paramount Oil Co.	1	1,400
J. R. Phillips et al	5	1,825
Phillips Pet. Co.	202	25,180
Prairie O. & G. and Phillips Pet. Co.	66	12,225
Plains Drlg. Co.	1	0
Pure Oil Co.	3	470
Relief Oil Co.	3	460
Henry Riley	1	0
Riley & Holmes	2	205
Rock Island Oil Co.	1	0
Roxana Pet. Corp.	9	630
Ryan Pet. Corp.	4	290
Skelly Oil Co.	26	2,260
Skiatex Oil Co.	7	830
J. L. Smith	2	190
Smith & Barnum	2	50
Southwestern O. & D. Co.	4	860
Spring Creek Oil Co.	5	410
Summit Oil Co.	3	340
Sunny Jim Oil Co.	5	225
Sunburst Oil Co.	2	110
Sunrise Oil Co.	1	0
J. A. Swindler & Son	1	10
The Texas Company	1	40
Tex-O Oil Co.	1	10
Travelers Oil Co.	3	290
Triangle Oil Co.	5	490
J. D. Ward et al	3	130
White Eagle O. & R. Co.	25	1,400
Total Hutchinson County	861	99.410
Average per well		115.4
Carson County		
Amarillo Oil Co.	1	0
American Ref. Co.	9	650
Champlin Ref. Co	2	200
Delmar Oil Co.	1	45
Empire Gas & Fuel Co.	2	110
Gates Oil Corp.	1	5
Gulf Prod. Co.	17	485
Hughes Dev. Co.	1	75
Magnolia Pet. Co.	1	275
Marland Oil Co.	21	1,575
Marston Oil Co.	1	120
McMan Oil & Gas Co.	8	1,420
Nunn & McAuley	5	900
Parks et al	2	300
Prairie Oil & Gas Co.	3	945
Republic Prod. Co.	1	20
Roxana Pet. Corp.	11	1,600
W. W. Silk et al	3	70
Skelly Oil Co.	4	990
Southwest O. & D. Co.	1	0
Sunny Jim Oil Co.	2	10
The Texas Company	14	500
Total Carson County	111	10,295
Average per well		92.7
Gray County		
Canyon Oil Co.	1	10
Empire Gas & Fuel Co.	3	90
Gulf Prod. Co.	14	965
Humble O. & R. Co.	11	510
Magnolia Pet. Co.	19	520
McMan Oil & Gas Co.	10	610
Marland Oil Co.	1	20
Nabob Oil Co.	1	60
Osborne & Daniels	1	15
Phillips Pet. Co.	7	790
Prairie Oil & Gas and Atlantic and Shamrock	15	1,490
Pure Oil Co.	5	180
Roxana Pet. Corp.	1	35
Sun Oil Co.	3	90
The Texas Company	5	275
Wilcox-Pampa Oil Co.	20	2,200
Young et al	1	15
Total Gray County	118	7,875
Average per well		66.7
Moore County		
Cadman et al	1	0
Potter County		
Amarillo Oil Co.	1	35
Wheeler County		
Continental Oil Co.	3	375
Gibson Oil Corp.	6	360
Laycock et al	1	0
Magnolia Pet. Co.	3	425
Marland Oil Co.	1	475
Mid-Continent Pet. Corp.	1	20
Fain & McGaha	1	20
Mid-Kansas O. & G. Co.	3	535
Midwest Explin. Co.	2	5
World Oil Co.	2	45
The Texas Company	1	50
Total Wheeler County	24	2,310
Average per well		96.2
Grand total Panhandle	1,116	119.925
Average per well		107.4

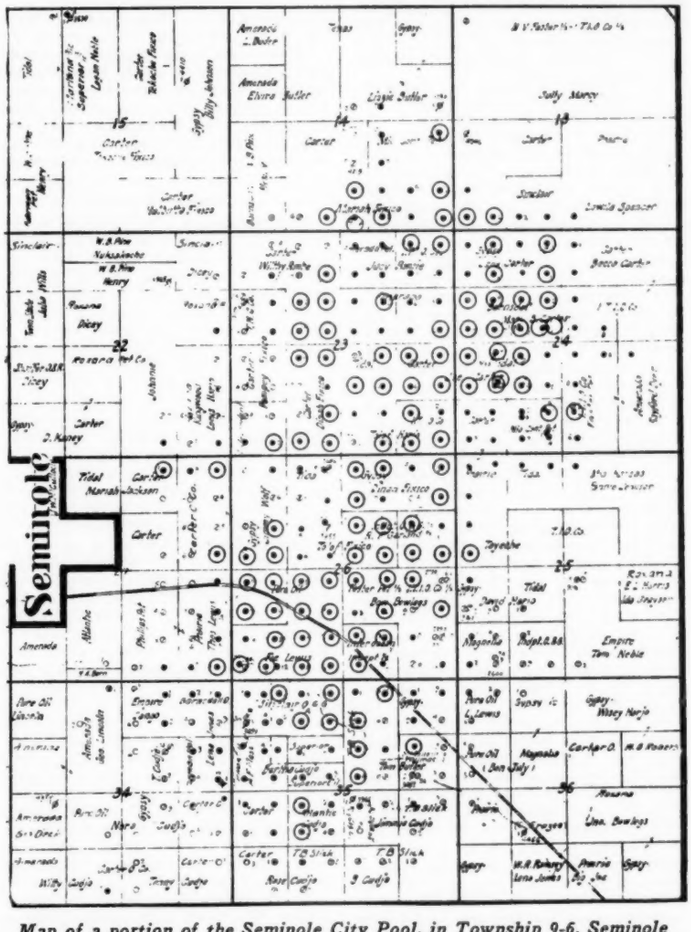
DRILLING IN GUATEMALA

It is reported that a well being drilled at El Estor, Guatemala, has reached lignite, indicating the presence of oil, at a depth of 800 feet after finding only soft dirt and sand down to that point. As the equipment at hand would not continue the drilling through soft dirt it has been necessary for additional materials to be brought from the United States. It is expected that the new equipment will drill to a depth of 1,500 feet, and the new well is to be located 1 mile east of the present one.

AIR-GAS LIFT TO HASTEN SEMINOLE PEAK

(Continued from Page 35)

duction has vanished, and the static head reduced. In discussing this, the executive remarked that anybody could produce oil with this system while the wells had large output, but that when they dropped very low in yield was the time that real engineering skill and effort would discover a means to handle the oil, and that rods and pumping equipment would never be general in use in the Seminole Field. Whether he was correct or not is a question the future must decide.



Map of a portion of the Seminole City Pool, in Township 9-6, Seminole County, Oklahoma. The wells around which circles are drawn are those in which the air-gas lift is being used to stimulate production.

RESTORING PRESSURE IN NORTH TEXAS FIELD

(Continued from Page 34)

enced by its action on pump cups. Various tests are now being made of the material in the cups with a view towards limiting this difficulty, but little has been accomplished to date.

One company very prominent in the field seems to believe that the air-gas lift may be utilized even after the huge prare now in the experimental stage or soon will be.

The owners of the Petrolia Field are well satisfied with their venture and curves show the volume of gas inducted into the wells and the volume of gas returned have he d a fairly steady ratio for some time. Little change has been noted in the volume of gas going into the sand for some time and little change has been noted in the volume recovered. A portion of the gas inducted is not recovered but that is principally due to the fact that leakage in several old wells has not been stopped.

One striking feature of the production curve is that production remains steady, but the operators are able to either lower or raise it.

HOLLAND USES MORE OIL

The official trade statistics of the Netherlands show an increased domestic consumption of all petroleum products compared with figures for the corresponding months of the previous year. The increases were most marked in the consumption of gasoline and gas oil. In addition to the local consumption of petroleum products, their transshipment through the Netherlands has been increased owing to more favorable economic conditions in Germany.

COLUMBIA GAS & ELECTRIC

Columbia Gas & Electric Corp. declared the regular quarterly dividends of $1.25 on the common and $1.50 on the preferred, both payable May 15 to stock of record April 20. At the annual meeting the directors, executive committee and officers were re-elected.

Statement of Columbia Gas & Electric Corp. and subsidiaries (controlled by over 99 per cent common stock ownership or lease), for February, 2 months, and 12 months ended February 28, 1927, follows:

	Feb., 1927	2 Mos. End. Feb. 28, '27	12 Mos. End. Feb. 28, '27
Gross	$9,350,961	$19,734,164	$92,850,286
Net after tax & depr.	3,291,540	7,244,150	31,581,455
Total inc.	3,550,078	7,767,690	35,041,900
*Surp. after chgs.	2,779,345	6,209,908	25,692,548

*After preferred dividends of subsidiaries.

California's Market Is Further Unsettled By Price Reduction

LOS ANGELES, Calif., Apr. 23.—The price situation in California continues very unsettled. Pan American Petroleum's 2 cent price cut made on Friday, April 15, was met almost immediately by the other marketing companies except the Union Oil Co. of California and the Associated Oil Co. On Tuesday, the Associated Oil Co. fell in line, reducing its price to meet that of the other companies. The Union Oil Co., however, is still standing pat on the old price which is 14½ cents, including tax, at its service stations in the Los Angeles area.

On Saturday, April 16, the Richfield Oil Co. announced a 2-cent price reduction throughout its marketing territory. The reason for spreading the cut to other parts of the state was given in the announcement as follows:

"In view of the fact that a larger percentage of our gallonage is sold in the South than is the case with any other major distributor, it appears only reasonable to make the cut state-wide, so that all the marketing companies may participate equally in the sacrifice involved in reducing the market price below economic levels."

This state-wide reduction was met almost immediately by the other companies.

It is the general belief that the Union Oil Co. is in a rather delicate position as to which move to make next. At the present time sales of gasoline through its service stations have fallen off greatly. If this company lines up with the others on the price of gasoline, it means that it must deliver gasoline at independent stations for 4½ cents per gallon, without tax. This is because of outstanding contracts calling for a 6-cent differential to dealers. Such an extremely low price obviously shows that operations on this basis would be unprofitable. The Pan American Petroleum Co., when announcing each 2-cent cut referred to the extra large differential allowed dealers by other companies as the reason for its cut. It appears then that the end which it is attempting to gain is to force companies giving such large margins to independent service stations to cease this practice and return to the 4-cent differential allowed by the balance of the companies. The Union Oil Co. at present apparently does not want to do this as it would undoubtedly hurt its standing with dealers holding such contracts, and is continuing its service station price at the higher level with the hope that prices will soon go back to where they were before the last reduction.

A ray of hope as to future developments of the market is that one of the other companies, which had also given dealers contracts calling for a 6-cent differential, has canceled these contracts after meeting the last price cut inaugurated by the Pan American Petroleum Co. Marketers generally believe that if the 6-cent differential evil is completely eliminated, prices will almost immediately be advanced at least 2 cents and the large losses being sustained at present will be eliminated to a great extent.

A report has just been received from what is considered an authentic source that the smaller refiners who have been marketing so-called "bootleg" gasoline in the Los Angeles area have met and agreed, beginning Monday, to sell their gasoline at 7½ cents delivered to service stations, including state tax. This step shows just how hard pressed the smaller refiners are under present conditions. By delivering gasoline at 7½ cents, including state tax, they are selling at 1 cent under the delivered price of the large marketing companies who are offering a 4-cent differential. If the present practice of selling so-called "bootleg" gasoline 2 cents under the price for standard brands is continued, it will mean that the independent dealer must give away part of his differential in order to do it. In place of realizing 4 cents on each gallon of "bootleg" sold, assuming he continues to sell at 2 cents under the large companies, he will realize only 3 cents on each gallon sold. From all appearances it is safe to say that prices are undoubtedly at rock bottom, if not lower, at present and that future developments can be expected to be upward rather than downward.

The California State Senate has just passed Senator Breed's bill calling for an increase in gasoline tax from 2 cents to 3 cents per gallon. This bill is passed in the face of the people voting against a similar measure which was defeated last November. It is expected that the Assembly will also pass it and that the Governor will sign it, making it a law.

PURCHASING CENTRAL STATION INADVISABLE

(Continued from Page 162)

many parts of the plant, in order to make full use of all of the heat units in the exhaust steam, would have to be equipped with high-pressure steam lines for the operation of prime movers with superheated exhaust steam low-pressure lines for process work discharging where possible to a still lower exhaust steam line to return the condensation to the boiler feed water heaters.

Second Method

Another method which has not as yet become common practice but which in my opinion is destined to become very popular in the near future and in all probability would work out to better advantage in small plants, especially in slack periods when not a sufficient amount of exhaust steam could be utilized to develop the full power load required, would consist of practically the same boiler equipment but would have superheaters installed to increase the steam temperature approximately 100 degrees. The steam would be used at 200 pounds boiler pressure, passing through steam turbines direct connected to generators with a back pressure of 65 pounds to 70 pounds The steam turbine would be used simply as a reducing valve, allowing it to float in the line, bypassing through reducing valves any portion of steam generated not required to produce electrical energy, using this steam at 60 to 70 pounds pressure to operate various parts of the plant—steam pumps, process work, stills—returning any exhaust to the boiler feed water heater under 5 to 10 pounds back pressure, if desired.

As an illustration let us trace this steam through one department which lends itself very readily to the utilization of practically all of the heat units.

The steam is generated in the boilers at 200 pounds pressure, passing through the steam turbine with its 100 degrees of superheat and 65 pounds back pressure with a heat loss of approximately 6 per cent, or with 94 per cent of its original B.t.u's still contained in the steam. The steam then passes to the refrigerating department, the 65 pounds pressure operating steam-driven ammonia pumps as well as brine pumps, they in turn exhausting at 20 pounds back pressure through the generators returning the condensation from the refrigerating equipment to the boiler feed water heater.

It would also be possible by this method to install steam pumps and prime movers of sufficient capacity to operate the plant, using the exhaust steam from the turbines at 65 pounds back pressure, in turn using the exhaust steam from the prime mover at 20 pounds pressure as in the first method, trapping out the condensation, reheating with the waste fluid gases and utilizing the heat units contained in the exhaust steam and the waste gases from the stills to a point at which the greater proportion of the electrical energy would be a by-product which could be sold to further decrease the manufacturing cost.

Substantial Saving

I am not sufficiently versed in the technicalities of engineering to advise what saving could be made by such an installation but there should be a saving on the boilers of $10.000 to $12,000 a year in increased efficiency and somewhere close to $10,000 a year on generating your own electrical energy if the exhaust from the steam turbines were used only for process work without attempting to make a by-product of the electrical energy. Such equipment, capable of developing 375 k.w.h. approximately 300 horsepower, together with its switchboard, could be installed for about $11,500. Turbines operating at 65 pounds of back pressure would consume approximately 68 pounds of steam per k.w. or would utilize approximately 500 boiler horsepower to develop 300 horsepower at the motors. Two units, one for use and one for standby, should cost $23.000.for a total investment for boilers and electrical equipment of $60,000, which should enable one to manufacture electrical energy at from one-fourth cent to three-eighths cent per k.w.h. as against the 1½ cents charged by the public utilities companies. Summed up, you would have an approximate investment of $60,000, an investment which should carry interest and depreciation charges and retire itself on the saving which could be made in three and one-half to four years' time.

Some time ago I read in one of our power magazines of a large paper plant recently put in operation, which is just such a plant as I have in mind, claiming returns of 63 per cent on their entire investment for their electrical energy developed in this manner, or paying for the turbine and generator in increased efficiency every year and a half. This efficiency is based on generating their own power with condensing steam turbines.

I am also reliably informed that the Standard Oil Co.'s plant located at Bayway, N. J., either has in operation or will shortly place in operation steam turbines operating at a high back pressure. Many other lines of industry are also utilizing the high back pressure in process work. If I am correctly informed the first plant of any great size to adopt it was the Goodyear Tire & Rubber Co., Akron, Ohio.

Please do not misinterpret my statements as meaning that I am opposed to purchasing central station power if rates are fair, providing you are not in a position to generate steam economically and at high pressures. For such a plant I believe it to be more economical, taking into consideration its convenience, adaptability and low upkeep cost than would be the operation of steam-driven engines and pumps exhausting a good proportion of their energy to the air.

NORTH AND WEST TEXAS

(Continued from Page 41)

had no results at 851 feet. Gwynn and others' No. 1 Christian also proved to be a failure at 1,303 feet. The Texas Company's No. 1 Leberman was a duster at 1,102 feet. Atkinson & Sandefer's No. 1 Ford was flowing 125 bbls. at 2,645-55 feet. Pitzer & West's No. 1 Burns made 40 bbls. after a 30-quart shot at 2,155-66 feet, total depth 2,240 feet; No. 5 Miller-A made 150 bbls. at 2.934-35 feet. Roeser & Pendleton's No. 1 Davin was dry at 3,365 feet. Roxana Petroleum Corp.'s No. 3 Payne was shot with 20 quarts at 2.070-90 feet and made 55 bbls. Schemerhorn Oil Co.'s No. 1 Thompson was plugged back from 2.263 feet to 2,050-90 feet and made 80 bbls. after an 80-quart shot.

Callahan County

Mook-Texas' No. 1 Ed Baum made 260 bbls. at 1,667-83 feet. Tollett & Graham's No. 1 Alvord made 2,500.000 feet of gas from sand at 997-1,004 feet. Warren & Hays Oil Co.'s No. 1 Hatchett found oil sand at 812-30 feet and was plugged back to 817 feet and made 10 bbls. after a 15-quart shot at 812-17 feet.

Eastland County

Belva Oil Co.'s No. 1 Dawson was a failure at 3,396 feet. So was Hoffman & Page's No. 2 Lyerla at 1,502 feet. Mook-Texas Oil Co.'s No. 3 Sibly pumped 60 bbls. at 3.067-70 feet, total depth 3,077 feet. Price & Russell's No. 1 McGlohlin was a duster at 3,365 feet. McLester Oil Co. and associates' No. 1 Thorp made 2,300 bbls. initially from sand at 3,800-02 feet, but is now only making 1,500 bbls. Texas Pacific Coal & Oil Co.'s No. 1 Higginbotham made 8 bbls. initially from sand at 3,343-61 feet after a 40 and 60-quart shot and was plugged back from 3,827 feet to 3,561 feet.

Haskell County

Ramsey & Maxey's No. 1 Hughes proved to be a failure at 2,012 feet.

Palo Pinto County

Texas Pacific Coal & Oil Co.'s No. 154 Stuart made 35 bbls. initially from sand at 1,578-1,616 feet after a 40-quart shot.

Stephens County

Swensondale's No. 2 Cobb, was plugged back to 3,310 feet and pumped 3 bbls. after an 80-quart shot at 3,290-3,310 feet, total depth 4,200 feet. Lacey and others' No. 1 Groseclose was a duster at 3,303 feet. So was Tripplehorn Brothers' No. 5 Walker at 3.900 feet. The Texas Company's No. 3 W. F. Houston made 135 bbls. initially from sand at 3,266-3,352 feet.

WEST TEXAS COMPLETIONS

Concho County

Mullins, Davis & Davenport's No. 1 William Hughes was abandoned as dry at 2,272 feet. Swoveland & Lewis' No. 1 Plants & Bacon was a location abandoned.

Crane County

Eastland Oil Co. and Collett's No. 8 University was completed for 2,600 bbls. at 2,845-2,952 feet. Humble Oil & Refining Co.'s No. 5 University was completed for 388 bbls. at 2,835-3,004 feet; No. 7, for 270 bbls. at 2,905-95 feet. Independent Oil & Gas Co.'s No. 1 University-A made 1.719 bbls. initially at 2,836-2,926 feet. McCamey & Zoch's No. 1 Cowden Brothers & Co. was a duster at 3,461 feet. Prairie Oil & Gas Co.'s No. 1 Collett was plugging to abandon at 4,170 feet; No. 1 State-Lasseter was a 75-bbl. completion at 2.875-3.000 feet.

Simms Oil Co. and Atlantic Oil Producing Co.'s No. 1 University-C was a 275-bbl. well after a 30-quart shot at 2,950-66 feet; No. 1 University-D flowed 1.240 bbls. at 2.804-2,950 feet. Tidal Oil Co.'s No. 2 University-F flowed 1.560 bbls. at 2,820-2,925 feet; No. 3 University-F flowed 1,136 bbls. at 2,867-2,932 feet; No. 4 was good for 1.679 bbls. the first 24 hours at 2.875-2,938 feet.

Howard County

Bristow & Merrick's No. 2 A. J. Hooks flowed 65 bbls. of oil and estimated 3,000,000 feet of gas after a shot of 80 quarts at 1,802-30 feet, total depth 1,842 feet. Marland Oil Co.'s No. 7 Chalk-A was swabbing an average of 27 bbls. at 1,571 feet; No. 3 H. R. Clay was shot with 15 quarts from 1,795-1,803 feet, top of pay 1,783 feet and total depth 1,805 feet, after which it swabbed 60 bbls.; No. 3 H. R. Clay-A was swabbing 70 bbls. while cleaning out atfer a 20-quart shot at 1,824-39 feet. No. 4 was swabbing 40 bbls. at 1,772-91 feet; No. 1 Clay-C was shut down with a hole full of salt water at 1,815-17 feet and No. 1 Clay-D was also shut down with the same at 1,971 feet. Reeves & Apperman's No. 2 H. R. Clay flowed 14 bbls. by heads at 1,748-58 feet and will be deepened.

Jones County

Hurley Oil Co.'s No. 2 John Sears was dry and plugged at 2,611½ feet.

Pecos County

Buell & Hagan's No. 1 University was dry and abandoned at 3.008 feet.

Upton County

Independent Oil & Gas Co.'s No. 94 Len Taylor pumped 60 bbls. at 2,140-50 feet. Republic Production Co.'s No. 6 Baker was officially completed for 100 bbls. on the pump. It was shot with 110 quarts at 2,238-2,316 feet a few weeks ago, swabbing 150 bbls. after standing a week.

Roxana Petroleum Corp.'s No. 15 Della Bowen pumped 110 bbls. from pay at 2,060-95 feet after plugging back from 2,127 feet where it had 10 bailers of salt water per hour; No. 19 Bowen pumped 100 bbls. at 2,090-2,164 feet; No. 20 flowed 338 bbls. at 2,068-2,155

feet; No. 22 was flowing 60 bbls. hourly, no water, at 2,035-2,110 feet.

NORTH CENTRAL TEXAS
ESTIMATED PRODUCTION
Week Ending April 23, 1927

Ranger District—	This Week	Last Week
Brown County	21,150	25,215
Callahan County	4,560	4,870
Coleman County	1,370	1,355
Comanche County	1,585	1,600
Palo Pinto County	595	500
Ranger	10,410	8,410
Shackelford County	11,950	12,940
Stephens County	10,350	10,440
Total Ranger district	61,880	65,330
Wichita Falls District—		
Archer County	30,320	30,515
Baylor County	95	100
Clay County	670	700
Cooke County	2,760	1,730
Jack County	570	530
Montague County	13,020	13,120
Throckmorton County	1,690	1,550
Wichita County	31,500	31,710
Wilbarger County	13,515	13,810
Young County	13,110	11,125
Total Wich. Falls district	107,250	104,890
West Texas District—		
Big Lake Field	27,584	27,730
Crane County	42,791	40,340
Crockett County	1,584	1,600
Ector County	18	20
Garza County	4	5
Glasscock County	23	60
Howard County	2,727	2,955
Jones County	2,375	2,585
Loving County	23	25
Mitchell County	3,969	4,100
Pecos County	296	612
Scurry County	26	28
Upton County	18,708	19,960
Winkler County	1,252	1,060
Total West Texas district	101,380	101,080
Grand total North and West Texas	270,510	271,300
Decrease	790	

WEST TEXAS
DAILY AVERAGE PRODUCTION
Week Ending April 23, 1927

Company and Lease—	Wells	Prod.
Crane County		
Church et al, University	1	98
Church & Weekly, University	1	1,765
Cromwell et al, University	1	1,075
Eastland & Collette, University	3	7,199
Gulf Prod. Co.:		
J. T. McElroy	8	5,070
Crier-McElroy	8	3,945
State-Lasseter	7	3,250
Humble O. & R. Co., University	6	7,067
Independent O. & G. Co.:		
Hughes	1	15
University-A	1	758
McMan Oil & Gas Co., Hughes	2	130
Magnolia Pet. Co.:		
Univ.-Hardwick	1	6
Univ.-O'Keefe	5	334
State-Lasseter	2	56
Magnolia Pet. et al, University	4	118
Marland Oil Co.:		
Cowden-A	3	110
Cowden-B	1	123
Durham	3	20
Hughes-C	3	66
Hughes-D	6	1,001
Hughes-Gibbs	2	35
Prairie Oil & Gas Co.:		
University	6	468
State-Lasseter	1	49
Simms & Atlantic:		
University-A	4	4,311
University-B	1	58
University-C	1	234
University-D	1	843
Stidham & Thrasher, University	1	12
The Texas Company:		
King	9	315
Union Land-F	1	7
Tidal Oil Co.:		
University-B	2	100
University-C	1	42
University-E	1	58
University-F	3	4,052
Totals	101	42,791
Crockett County		
Cromwell et al, Powell	5	155
Gulf Prod. Co.:		
Powell-A	4	50
Powell-D	1	80
J. K. Hughes:		
Powell-A	3	182
Powell-B	1	40
Humble O. & R. and Marland:		
Powell	9	790
Sorg	1	40
Powell-B	1	50
Republic Prod. Co., Powell	2	180
Roxana Pet. Corp., Powell	1	17
Totals	28	1,584
Ector County		
J. S. Cosden, Connell-A	1	18
Garza County		
Emerald Oil Co., J. M. Boren	1	4
Glasscock County		
Texon-Marland, Settles	1	23
Howard County		
Bristow & Merrick, A. J. Hooks	2	155
Choate & Henshaw	1	6
Comet Pet. Co., H. R. Clay	1	35
Dixie Oil Co., H. R. Clay	1	27
Gulf Prod. Co., Chalk	1	30
Humble Oil & Ref. Co., Douthit	2	52
Lockhart & Co., Chalk & Chalk-A	3	113
Lockhart & Carey, Scott	1	18
Magnolia Pet. Co.:		
Chalk	4	150
Hyman Chalk	2	32
Mary Chalk	4	228
Otis Chalk	7	263
Sarah Hyman	2	70
Sloan Chalk	1	40
Marland Oil Co.:		
Chalk	10	345
Chalk-A	6	272
H. R. Clay-A	2	192
H. R. Clay	2	306
Otis Chalk-B	1	50
Otis Chalk-C	1	36
Otis Chalk-D	1	45
Otis Chalk-E	1	155
Reeves & Apperman, H. R. Clay	1	106
Totals	60	2,727
Jones County		
Atlantic Oil Prod., Howell	1	67
Marland Oil Co., Mason	3	728
Midwest Explin. Co., Thornton	4	399
Phillips Pet. Co.:		
Tessle-Walling	3	420
Winter	2	391
R. M. Beasley	1	99
J. C. Mason	1	204
Totals	15	2,308
Loving County		
Lockhart & Co., Allen	1	23
Mitchell County		
Atlantic Oil Prod., Womack	8	478
California Co., All leases	81	2,519
F. J. Carey et al, E. Morrison	1	14
Eastland Oil Co., All leases	9	325
Magnolia Pet. Co., All leases	19	609
Tidal Oil Co., All leases	2	24
Totals	120	3,969
Pecos County		
Mid-Kansas O. & G. Co.:		
Yates-A	3	326
Yates-B	1	260
Texon O. & L. Co., Yates	1	10
Totals	5	596
Reagan County		
Big Lake Oil Co., University	103	19,761
Texon Oil & Land Co., University	72	7,823
Totals	175	27,584
Scurry County		
Northwest Oil Co., All leases	4	26
Upton County		
Amerada Pet. Corp., Hughes	5	406
Atlantic O. P. Co., Sherk	1	35
Dixie Oil Co.:		
Burleson	17	2,755
Hughes	10	356
Gulf Prod. Co.:		
Baker	1	5
Baker-B	2	75
Estep	2	400
Hughes	4	170
Lane-C	1	150
J. T. McElroy-B	1	100
Sherk	1	30
Humble O. & R. Co.:		
Burleson	4	50
Ricker	3	350
Independent O. & G.:		
Burleson	5	60
Taylor	10	515
Wooley	10	743
McMan Oil & Gas Co., Baker	1	6
Marland Oil Co.:		
Baker-A	1	25
Benton Land	1	25
Burleson	31	1,112
Burleson-A	3	10
Burleson-B	1	3
Estep	8	410
Hughes-B	1	5
Keith	3	240
Sanger	20	587
Shirley	4	640
Powell	4	319
Shirley-A	1	20
Gibbs	2	223
Prairie O. & G. Co., Lane	4	575
Republic Prod. Co., Baker	5	56
Rio Grande Oil Co., Estep	1	9
Roxana Pet. Corp.:		
Bowen	17	3,483
Estep	3	74
Hughes	10	568
Simms Oil Co., Shirley	3	209
Sun Oil Co., Burleson & Baker	10	243
The Texas Company:		
Burleson	4	67
King	12	495
Texon O. & L. Co., Sherk	1	30
T. P. Coal & Oil Co.:		
Sherk	4	151
Lane-A	6	2,685
Lane-B	1	72
Wentz Oil Corp., Sherk	3	170
Totals	242	18,708
Winkler County		
Southern Crude Oil, Hendricks	2	850
Gulf Prod. Co., Hendricks	1	400
Totals	3	1,150

MINOR CHANGES IN OKLAHOMA MARKET

(Continued from Page 30)

output of refined products which in the case of fuel oils, kerosenes and distillates would no doubt mean lower prices. These products, unlike gasoline, are not entering a period of maximum demand and increased output means lower prices.

Minority Opinions

The foregoing outlines the attitude of those who expect lower prices, a group which at the present time constitutes the majority in Oklahoma. A minority group, however, presents the same set of facts as proof of a contention that there will be no further important reductions in crude prices.

They point to the fact that lower crude prices mean lower gasoline tank wagon and service station schedules, as tending to minimize the probability of the latter development. In other words, it is contended that lower crude prices will bring such a general revision in prices to the consumers of a majority of refined products that the major companies who dominate both the crude and retail markets would lose heavily in any forced adjustment at this time.

This argument is offered by those who contend also that crude prices are already low enough to correct the overproduction situation which is the principal factor in the generally demoralized markets of the industry. Thus the attitude of the minority in the refining and marketing trade can be summarized with the statement that lower crude prices will not hasten the correction of the crude situation and will retard improvement in the refinery and retail markets of the industry.

May Market

While the pro and con of this situation has been discussed during the past week, the market in Group 3 has shown little change so far as spot sales are concerned The only unfavorable development of the week so far as the sellers are concerned has been the weakening attitude relative to the May market. A week ago refiners were refusing to consider May business in gasoline and kerosene except at prices from one-half to three-quarters of a cent above the spot market. During the past few days sales for the first half of May have been reported on a basis of the spot market.

Future business on this basis has not been large so far as Oklahoma refiners are concerned, as most of the sellers, due to an expected increase in demand, are still hopeful for better gasoline prices in May than in April. In this connection these low prices for May are coming principally from large refiners with plants located in the Middle West who are accustomed to quote on a basis of Group 3. Their quotations on the U. S. Motor grade during the past week have been from one-eighth or one-quarter of a cent under the prevailing prices from refiners with plants located in the group.

Gasolines and Naphthas

The stability of the U. S. Motor gasoline market at 6¼ to 6½ cents throughout the week was due in part to the better seasonal movement. The general rains retarded the shipping in some localities and held down consumption somewhat, but the start of the season's buying held the market at a last week's quotations. Buying outside of Oklahoma, based on the group, is said to be as low as 5⅞ cents, but the material is being supplied from the Chicago district at favorable freight rates for that area.

A slight weakening of the price on the lower endpoint gasolines was a continuation of the trend for the last month and with a differential in price of but three-eighths of a cent between the 58-60 437 endpoint gasoline and the 60-62 400 endpoint grade, there is no inducement to the refiner to push the sales of the latter. Any further weakening of the price on the 400 endpoint grade would be of short duration or would be indicative of a general lowering of gasoline prices. The 64-66 375 endpoint gasoline is moving slowly at 7 cents flat, with some being shipped out of North Texas in 250,000 and 750,000-gallon lots at 6¾ cents. The naphtha prices remained unchanged.

Kerosenes and Distillates

Over the week the kerosene price yielded one-eighth of a cent and some material was reported out of North Texas at 3⅞ cents. There is little promise of any great activity in the movement of either kerosene or distillate until the late summer season.

Fuel Oil and Gas Oil

There was no change in the fuel market, but periodic offerings at prices a few cents below the general market of 92½ to 95 cents for the lowest grade and 97½ cents to $1.02½ for the 24-26 grade pointed to a possible further weakening in the prices for the immediate future. If a further decline occurs it will probably be more pronounced in the lower gravities. So long as gasoline does not go more than one-quarter of a cent below the present price structure it pays most refiners to crack. The normal yield of gas oil will again be used as cracking stock and a low gravity pressure fuel will be produced. The resumption of cracking will also tend to eventually strengthen the fuel market, but there is a sufficient excess stock of gas oil at the refineries, together with the possibility of a crude drop that a stronger fuel price is remote.

Natural Gasolines

Practically no changes occurred in the prices on natural gasoline even though considerable material was being taken out of Group 3. One company purchased 250 cars, most of which was AA, doctor sweet, and are shipping approximately 90 per cent of it to points out of the Group 3 territory, but even with this large purchase there was no apparent strengthening of the price either for the present or on early May deliveries.

Lubs and Wax

The good cylinder stock and neutral markets are about the only encouraging factors in the entire market, and, although the prices have remained the same, there was a firm tone in the trading. The wax market appeared to have gained strength during the week, but there was no change in the price.

NEW OIL FINANCING THIS YEAR $169,000,000

New public finincing by units engaged in the oil industry amounts to $169,000,000 par value so far this year.

Included in the total is the $50,000,000 of 5 per cent debentures recently sold by the Shell Union Oil Corp. The $50,000,000 of 4½s sold by Standard Oil Co. of New York equals in size the Shell offering, while Standard Oil of New Jersey obtained $206,000,000 from shareholders and the public to retire $200,000,000 preferred at $115 a share. However, both of these issues were made late last year. Being 72 per cent owned by Royal Dutch-Shell group, the Shell Union issue may be regarded as financing of that group in the American market.

With the $25,000,000 of 15-year 4½ per cent debentures sold in January by the Batavian Petroleum Co., another Royal Dutch subsidiary, the group has financed to the extent of $75,000,000 in the American money market to the extent of $75,000,000 in the American money market to meet its requirements. The Batavian issue was priced on a 4.85 per cent basis and the new Shell Union's a little above 5 per cent yield

Below is presented the various pieces of new oil financing so far this year:

Shell Union Oil, $50,000,000 5 per cent debentures; Gulf Oil Corp., $35,000,000 5 per cent debentures; Humble Oil & Refining, $25,000,000 5 per cent debentures; Batavian Petroleum, $25,000,000 4½ per cent debentures; Skelly Oil, $15,000,000 5½ per cent debentures; Independent Oil & Gas $6,500,000 6 per cent convertible debentures; White Eagle Oil & Refining, $5,000,000 5½ per cent debentures with purchasing warrants; Richfield Oil, $5,000,000 7 per cent preferred at par $25; Warner-Quinlan Co., $2,500,000 6 per cent convertible debentures; total, $169,000,000.

That there will be further financing by oil companies there is little doubt, the Wall Street Journal says. A number of companies will undoubtedly do financing in the next several months and in some of these cases it will be for the purpose of liquidating bank borrowing now being incurred to store crude oil during the season of low prices as well as to meet usual expansion of properties.

OIL IN OBERG DISTRICT

In the past few weeks important oil discoveries are reported to have been made in the oil region of Hanover, Germany, which included the Oberg district near Peine. The first discovery of importance in the Oberg district was made by the Nord-Deutsche Mineralol A. G.

NATURAL GASOLINE BIDS

WASHINTON, D. C., Apr. 26.—Bids for the sale of natural gas derived from naval oil reserves Nos. 1 and 2, at Elk Hills, California, will be opened by the Navy Department May 2 at the office of the Inspector of Naval Petroleum Reserves in Los Angeles.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 41)

Gulf Prod. Co.'s No. 1 Clements, SW cor. Sec. 27, Blk. M-10-A, Sealy & Morris Sur.—Total depth 1,505 ft.; underreaming 8-in. to 1,490 ft.; water sand 1,435-50 ft.; total depth 2,055 ft.; underreaming 8-in. 2,295 ft.

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur.—S.D. 510 ft. for casing.

COCHRAN COUNTY

J. C. Whicker's No. 1 G. C. Landon, 300 ft. N and 5,800 ft. E SW cor. League 154 Sherman Co. Sch. Ld.—Shut down 1,550 ft.

COKE COUNTY

Lipan Oil Co.'s No. 1 S. M. Conner.—Drilling 900 ft.

CONCHO COUNTY

Harry Adams et al's No. 1 Price, C SW Sec. 78, Blk. 71, Alex Gregg Sur.—Drilling 200 ft.

Associated Pet. Co.'s No. 1 Sam Waring, SW cor. Jacob Getthardt Sur. No. 2,035.—Shut down 2,300 ft.; will skid.

Arkansas Fuel Co.'s No. 1 Hartgrove, SW cor. NW Sec. 49, Blk. 70, H. & T. C. Sur., 12 miles E of Paintrock.—1,000,000 ft. gas 1,100-10 ft.; 4,500,000 ft. gas 1,142-47 ft.; small show oil in sandy lime 2,165 ft.; show oil 2,454-80 ft.; show oil and 200,000 ft. gas 2,494-2,512 ft.; bailed 8 bbls.; drilling, 2,830 ft.

The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur.—Shut down 1,680 ft.

Gene Mays and others' No. 1 Hartgrove, NW SW Sec. 312, Mrs. A. Schmidt Sur. A-1,173.—Flowed salt water with little gas 1,550 ft.; fish, bailer 1,910 ft.

COTTLE COUNTY

Sun Oil Co.'s No. 1 Tom Burnett, C NW SE Sec. 6, Blk. L. S. P. R. R. Sur.—Drilling 410 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 1 W. N. Waddell, NE cor. Sec. 12, Blk. B-25, School Land.—Drilling 1,030 ft. with core drill machine.

Prairie O. & G. Co.'s No. 1 Colette, SW cor. Sec. 36, Blk. 31, University Sur.—Four bailers sulphur water per hr. at 4,000 ft.; shut down 4,170 ft.; will plug and abandon.

Zweifel and others' No. 1 W. H. Cowden, SE SE Sec. 16, Blk. X, C. C. S. D. Sur.—Hole full sulphur water 3,050 ft.; shut down 3,301 ft.; flowing sulphur water.

CROCKETT COUNTY

Anchor Oil Co. (Cumberland) No. 1 Couch, C NE Sec. 18, Blk. QR, D. & S. E. T. R. R. Sur.—Shut down 3,075 ft.

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur.—Drilling 1,000 ft.

George A. Henshaw, Jr., No. 1 University, 1,320 feet from S. and W. lines SW Sec. 5, Blk. 14, University Sur., elev. 2,297 ft.—Top salt 450 ft.; small show oil and gas 1,100-15 ft.; 300 ft. sulphur water 1,668 ft.; hole full sulphur water 1,725 ft.; drilling 1,890 ft.

J. K. Hughes' No. 2-B Powell, Sec. 63, E. L. & R. R. Sur.—Fishing for 18 joints 8-in.; total depth 2,535 ft; shut down.

Magnolia Pet. Co.'s No. 2 Shannon, SE SE Sec. 9, Blk. BB, E. L. R. R. Sur., elev. 2,670 ft.—Hole full sulphur water 2,390 ft.; small show oil 2,385-90 and 2,992 ft.; U.R. 6-in. 3,392 ft.

William Shaffer and others' No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur., elev. 2,344 ft.—T.D. 2,344 ft.; plugged back to 2,208 ft; shot 10 qts. 2,170-95 ft.; S.D.

William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, Univer. Land.—Spudding.

W. W. Donnelly, Young, Logan & Hult's No. 1 Pierce, C SW Sec. 150, Blk. O, G. H. & S. A. Sur., elev. 2,105 ft.—Rainbow show 454 and 540 ft; S.D. for 10-in., 1,375 ft.

P. H. Williams' No. 1 L. P. Powell.—Top salt, 1,052 ft.; drlg., 1,500 ft.

World Oil Co.'s No. 1 Schneeman, N and W SE cor. Sec. 57, Blk. BB, G. C. & S. F. Sur., elev. 2,679 ft.—Top salt 1,035 ft.; sulphur water 2,490 ft.; T.D. 2,575 ft.; trying to swedge pipe.

Young & Cromwell's No. 1 University, C SE Sec. 23, Blk. 31, University, elev. 2,395 ft.—Pay 1,160-65 ft.; shows at 1,505 and 1,574 ft.; hole full sulphur water 1,930 ft. and 1,962 ft.; drilling 2,160 ft.

CROSBY COUNTY

El Capitan Oil Co.'s No. 1 O. L. Slaton, NW cor. SW Sec. 5, Blk. B-9, E. L. & R. R. Sur.—S.D., 3,510 ft.; contract depth.

CULBERSON COUNTY

James H. Gardner and others' No. 1 Radford, C SE Sec. 29, Blk. 62, Pub. Sch. Ld. Sur.—S.D., 400 ft.

DICKENS COUNTY

Bowser Mickels and others' No. 1 Pitchford ranch.—S.D. 3,250 ft.; contract depth; may deepen.

Moutray Oil Co. and Clancy & English's No. 1 Jones, SE cor. NW Sec. 311, Blk. 1, H. & G. N. Sur.—S.D., 3,550 ft.; to deepen.

ECTOR COUNTY

J. S. Cosden, Inc., et al's No. 2 Connell-A, NW cor. NE Sec. 13, B-16, School Land.—Top salt, 855 ft.; drlg., 930 ft.

J. S. Cosden et al's No. 3 G. W. Connell-A.—Rigging up.

Exploration Co.'s No. 1 J. D. Slator, C SW Sec. 10, Blk. 45, T. & P. Sur., T-1-S.—S.D. for orders, 4,435 ft.

FISHER COUNTY

Barber Oil Co.'s (was Mason Oil Co.'s) No. 1 W. A. Cross.—Drlg. sec. hole, 2,160 ft.

California Co.'s No. 1 R. G. Anderson, Sec. 22, Blk. 20, T. & P. Sur.—Hole full sulphur water, 2,500 ft.; salt water, 2,801-12 ft.; hole full salt and sulphur water 3,118-20 ft. and 3,208 ft.; drlg. 3,315 ft.

California Co.'s No. 1 Maggenheimer, SE cor. SW Sec. 15, Blk. 1, H. T. & B. Sur.—Hole full sulphur water 2,826-2,937 ft.; hole full water 2,975-3,000 ft. and 3,055-70 ft; S.D. for orders, 3,550 ft.

Danciger Oil & Refg. Co.'s (F. P. Zoch and others') No. 1 Lanius, NE cor. SE Sec. 15, Blk. Y, T. & P. Sur.—Drlg., 3,650 ft.

Fred Phillips' No. 1 C. M. Webb, 756 ft. S and 1,050 ft. W NE cor. Sec. 2, Blk. K.—Hole full salt water 2,220-40 ft. and 2,637 ft.; S.D., 2,760 ft. for repairs.

Hucony Gas Co.'s No. 1 Langford, SW SW Sec. 7, Blk. 21, T. & P. Sur.—Small show oil 2,350 ft. and 2,808-09 ft. and 2,826-27 ft.; no gas; set 6-in. 2,728 ft.; small show oil 2,947-50 ft.; S.D. 3,187 ft.

Ideal Oil Co.'s No. 1 Jameson, C SE Sec. 111, Blk. 1, H. & T. C. Sur.—Drlg., 620 ft.

Marland Oil Co.'s (was Caldwell and others') No. 1 Rochelle, SW cor. NE Sec. 184, Blk. 3, T. & P. Sur.—Hole full salt water 3,565-80 ft.; drlg., 3,610 ft.

Marland Oil Co. and Texon's No. 1 McCall.—Rig.

Marland Oil Co. and Vacuum Oil Co.'s No. 1 J. H. R. Lagow.—Building rig.

R. W. Raney's No. 2 Maberry.—S.D. for orders, 2,725 ft.

Sinclair Oil & Gas Co.'s (was Bourdon Royalty Co.'s) No. 1 J. A. Danise, Sec. 6, Blk. K, T. & P. Sur.—S.D., 570 ft. for casing.

Stearns & Streeter's No. 1 W. A. Howe, N and E SW cor. NE Sec. 12, Blk. 23, T. & P. Sur.—Drlg., 3,230 ft.

F. P. Zoch and others' No. 1 R. M. Clayton, C of W 160 acres of R. M. Clayton Pre-emption Sur.—Odor gas 2,681-2,707 ft.; hole full salt water 2,712-55 ft.; sulphur water 3,090 ft.; show gas in black lime 3,128-32 ft.; black and gray lime 3,152-55 ft.; rainbow show and strong smell gas; drlg., 3,730 ft.; wet hole.

FOARD COUNTY

Humble O. & R. and Navarro Oil Co.'s No. 1 L. McAdams, C S ½ Sec. 27, Blk. L. S. P. Sur.—S.D. for gas 2,466 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. NE Sec. 137, Blk. 5, H. & G. N. Sur.—Small show oil in gray lime 1,884-1,902 ft.; S.D. 2,212 ft.

Pandem Oil Co.'s No. 1 Justice, SW cor. NW Sec. 2, Blk. 6, H. & G. N. Sur.—Rig.

GLASSCOCK COUNTY

Green et al's No 1 F. G. Oxsheer.—S.D., 200 ft.

World Oil Co. and J. S. Meriwether's No. 1 L. S. McDowell, C SW Sec. 43, Blk. 34, Typ. 2-S, T. & P. Sur., elev. 2,553 ft.—Rigging up.

R. R. Penn et al's No. 1 W. P. Edwards, C SE Sec. 11, Blk. 34, Twp. 2-S, T. & P. Sur.—Spudding.

HALL COUNTY

Seifert and others' No. 1 Owens, C NE Sec. 179, Blk. S-5, Dennison & Pacific Sur.—Spudded and S.D.

HOCKLEY COUNTY

El Capitan Oil Co.'s No. 1 Ellwood, SW cor. Sec. 55, Blk. A. R. M. Thompson Sur., 18 miles NW of Lubbock.—S.D., 1,000 ft.

HOWARD COUNTY

Bowers et al's No. 1 Chester Jones, C SW Sec. 32, Blk. 27, T. & P. (3,200-ft. test).—Spudded and S.D.

Fred Carey et al's No. 1 G. O. Chalk, SE NW Sec. 124, Blk. 29.—Drlg., 400 ft.

Donollee et al's No. 1 Martin, SE cor. Sec. 41, Blk. 33, T-2-N, T. & P. Sur.—S.D., 1,519 ft. for water.

Francis & Brunson's No. 1 J. W. Furrh, C SW Sec. 11, Blk. 31, T. & P. Sur., T-1-S.—Location.

F. H. E. Oil Co.'s No. 1 John Roberts.—Spudded and S.D.

Godley Oil Co.'s No. 1 A. J. Hooks.—Rigging up rotary.

Marland Oil Co.'s No. 1 J. B. Harding, C SE Sec. 19, Blk. 33, T. & P. Sur.—Drlg., 2,900 ft.

L. C. Harrison et al's No. 1 Dora Roberts.—T.D., 700 ft.; U.R.

Marland Oil Co. & Zoch's No. 1 Guitar Est. No. 1.—Spudded and S.D.

Midwest Exploration Co.'s No. 1 H. R. Clay.—Drlg., 1,000 ft.

HARDEMAN COUNTY

Murchison Oil Co.'s No. 1 Mayfield.—Spudding; rotary.

HUDSPETH COUNTY

Lockhart Brothers' No. 1 Gardner & Moseley, C SE Sec. 5, School Blk. 21.—Spudding, 130 ft.

IRION COUNTY

Cash Dollar et al's No. 1 Abe Mayer, C NE Sec. 1, Blk. 10, S. P. R. R. Sur.—S.D., 2,500 ft.

Cash Dollar et al's No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur.—S.D., 1,085 ft.

JEFF DAVIS COUNTY

Humble O. & R. Co.'s No. 1 Crecencio Flores, Sec. 34, Blk. 58, T. & P. Sur., T-8.—Rigging up.

J. K. Hughes Dev. Co.'s No. 1 J. Z. Means, 600 ft. from N line and 2,000 ft. from W line of M. Robinson Sur. No. 1.—Drlg., 2,600 ft.

JONES COUNTY

Atlantic O. P. Co. and Landreth's No. 2 Howell.—Missed regular pay; S.D. 2,700 ft.

Bateman & Campbell's No. 1 Southard, C. NW NW Sec. 43, Deaf & Dumb Asylum Lands.—S.D.; fish. tools, 1,990 ft.

Midwest Exploration Co.'s (was Campbell et al's) No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur., elev. 1,832 ft.—S.D., 1,860 ft.

Consolidated Oil Co.'s No. 1 Armand & Taylor, C S½ SW Sec. 7, Blk. 4, H. & T. C. Sur.—Hole full salt water 1,470-90 ft.; U.R., 1,940 ft.

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands.—Location.

Gault Brown et al's No. 1 Mrs. A. Zips, NE cor. NW Sec. 24, Blk. 14, T. & P. Sur.—Drlg., 1,500 ft.

Gibson & Johnson's No. 1 Largent, C SE Sec. 50, Blk. 149, Dewitt Co. School Land.—S.D., 2,560 ft.

Gillette & Hickey & Cowboy Evans' No. 1 S. W. King, Manuel Bueno Sur. No. 197.—Good show oil 2,070 ft.; no gas; swabbed 10 bbls. oil and 30 bbls. water; S.D. for orders, 2,090 ft.

Gillette & Hickey's No. 1 M. E. Young, Tevanio Sur. No. 190.—S.D., 1,200 ft.

Grisham & Hunter & Wildman's No. 1 Mrs. F. G. Phillips (was Birchfield), 1,371 varas from S line and 2,720 varas from W line, Harrison Co. School Land No. 333.—Rainbow showing 2,758-65 ft., 2,815-25 ft. and 2,860-70 ft; hole full salt water 2,970 ft.; fishing casing, 3,000 ft.; plugging to abandon.

Grisham & Hunter & Wildman's No. 1 Williams, Harrison Co. School Land, elev. 1,732 ft.—Brown sand 2,620-40 ft.; tested 4 bbls. oil and 3 bbls. water; drlg., 2,750 ft.

Hart & Cole's No. 1 Cranston, Sec. 10, Blk. 17, T. & P. Sur., elev. 1,701 ft.—Hole full salt water 2,650 ft.; drlg., 3,165 ft.

Hutson & Weaver's No. 1 Smith, Sec. 51, Blk. 18, T. & P. Sur.—S.D. for fuel, 700 ft.

Kirk & Brewer's No. 1 J. H. Milsap, Justo Rodriguez Sur., League 357.—Drlg., 1,405 ft.

Manhattan Oil Co.'s No. 1 S. W. King.—Spudding, 100 ft.

Marston Oil Co.'s No. 1 E. Howell, NW. cor. SE W ½ of N 400 acres, Sec. 20, Blk. 19, T. & P. Sur.—Drlg., 2,490 ft.

Marston Oil Co.'s No. 1 J. S. Swan, Robert Spears Sur. No. 280.—Drlg., 1,320 ft.

Mid-Continent Petroleum Corp.'s No. 1 H. Evans, NE cor. SE SE Sec. 44, S. P. R. R. Sur.—Drlg., 2,640 ft.

Victor H. Martin's No. 1 Culbertson, Vincent Bell Sur. No. 6, elev. 1,678 ft.—S.D. for orders, 3,240 ft.

Phillips Pet. Co.'s No. 1 Thornton.—Six bbls. water, 1,930-45 ft; T.D. 2,826 ft; C.O.

Shaw & Rathke and others' No. 1 Bristow, SE SE Sec. 1, J. H. Gibson Sur.—S.D., 500 ft.

W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur., No. 2.—Drlg., 775 ft.

Stebbins Oil Co.'s No. 1 J. M. Higgs, Sec. 30, W. T. Scott Sur., elev. 1,624 ft.—Top Sedwick lime 1,265 ft.; swabbed 35 bbls. 1,599-1,604 ft.; deepened 1 ft. to 1,605 ft.; made flow of 25 bbls.; running tubing.

Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands.—Drlg., 1,215 ft.

Tomberlin et al's No. 1 Oscar Clapp, CSL SW Sec. 37, Blk. 16, T. & P. Sur.—Drlg. 800 ft.

World Oil Co. and others' No. 1 A. W. Clark, SE cor. Sec. 15, Blk. 19, T. & P. Sur., elev. 1,839 ft.—Hole full salt water 1,975-2,010 ft; more salt water 2,305 ft; slight show oil 2,425-36 ft. and 2,660-70 ft; hole full sulphur water 2,930 ft; T.D., 2,956 ft; will probably plug.

World Oil Co.'s No. 1 Boyd (was W. H. Lee), 12,700 ft. N and 2,130 ft. E of SW cor., Samuel Jones Sur. No. 266, elev. 1,729 ft.—Drlg., 2,300 ft.

Zeigler and others' No. 1 Reeves, C SE SE Sec. 164, B. B. B. & C. Sur.—S.D., 1,750 ft.

KENT COUNTY

Douglas Oil Co.'s No. 1 Scoggins.—S.D., 1,050 ft.

Marland Oil Co. and Texon O. & L. Co.'s No. 1 Bilby.—Location.

KING COUNTY

Gibson & Johnson's No. 1 Burnett est.—S.D. for casing, 1,140 ft.

Midwest No. 1 Patton.—Spudded 100 ft.

J. L. Pattison No. 1 Patton.—Fishing, 1,300 ft.

Phillips Petroleum No. 1.—Drlg., 2,105 ft.

Sinclair.—Drlg., 500 ft.

White Eagle No. 1.—Drlg., 1,450 ft.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Jones, CSL Sec. 111, Blk. C, H. & T. C. Sur.—Drlg., 2,520 ft.

Deep Rock Oil Co.'s No. 1 Beavers, CSL Sec. 224, Blk. 44, elev. 1,441 ft.—Drlg., 2,475 ft.

Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. south and

2,590 ft. west of NE cor. Sec. 31, Blk. 4.....Cable tools; drlg., 1,150 ft.
Humble O. & R. Co.'s No. 1 Goode, 1,940 ft. S and 200 ft. W of NE cor. Sec. 7, H. T. & B. Sur.....Drlg., 405 ft.

LOVING COUNTY

Kingwood Oil Co.'s No. 1 T. O. Moore, C NE Sec. 2, Blk. G-25 ,Pub. Sch. Ld.....Rigging up.
Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur.....Drlg., 380 ft.

LUBBOCK COUNTY

Sam Arnett and others' No. 1 Bowles Ranch.....S.D., 400 ft.

LINN COUNTY

The Hart Oil Corp.'s No. 1 C. O. Edwards, NW NW Sec. 5, Blk. 2.....S.D., 1,400 ft.

MENARD COUNTY

J. R. Lewis and others' No. 1 White, C NW Sec. 8, J. Mabrey Sur.....S.D , 415 ft.
Clark and others' No. 1 Klothman, NW NW Sec. 77, Kulman Sur.....S.D., 580 ft.

MITCHELL COUNTY

California Co.'s No. 1 E. Morrison, Lease 1.....Drlg., 2,814 ft.
B. H. Cogdell's No. 1-C F. E. McKenzie, WL NW NE Sec. 226, Blk. 1-A, H. & T. C. Sur.....S.D., 125 ft.
Robert Thraves' No. 1 C. Way.....Rig.
Paul Teas' No. 1 Ed Strain.....Drlg., 2,520 ft.
Morrison & Thompson's No. 1 Griffith, SE SE Sec. 45, Blk. 29, T. & P. Sur,. T-1-N.....Small show oil in sandy lime 2,-715-20 ft. and 2,750-55 ft; drlg. 2,940 ft.
B. E. Walter and others' No. 1 J. E. Dollen, NW cor SW Sec. 11, Blk. 27, T. & P. Sur.....S.D., 3,955 ft.; hole full sulphur water.
J. C. Yancey's No. 1 Saunders, 400 ft. N and 1,700 ft. E of SW cor. Sec. 25, Blk. 25, T. & P. Sur.....Spudded and S.D.

MOTLEY COUNTY

Chechaco Oil Co.'s (J. W. Pennington et al of Amarillo) No. 1 J. W. Owens, NW cor. Sec. 26, Blk. 4 (15,000-acre solid block).....S.D., 1,050 ft.
Wheeler et al's No. 1 C. D. Bird, C NE Sec. 4, Blk. S, Stephens Sur.....Rig on ground.

NOLAN COUNTY

A. G. Malone et al's No. 1 J. B. Carlvle.....Location.
A. G. Malone et al's No. 1 M. C. McElmurry.....Spudded and S.D.
J. H. Winemiller Corp.'s (was Peters et al's) No. 1 Booth.....S.D., 960 ft. for water.
Thomas & Reynold's No. 1 Allen, C. W. ½ NW Sec. 58, Blk. X, T. & P. Sur.....Fighting cave, 1,890 ft.
Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur.....Rigged up and S.D.
Phillips Pet. Co.'s No. 1 Scott, Sec. 58, Blk. 21, T. & P. Sur.....Drlg., 1,500 ft.
Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur.....S.D., 1,310 ft. for casing.

PARMER COUNTY

Humble O. & R. Co.'s No. 1 Farwell, elev. 4,005 ft.....S.D., 1,700 ft.

PECOS COUNTY

Arkansas Fuel Co.'s No. 1 H. Holmes, 2,040 ft. north and 1,520 ft. west SE cor. Sec. 16, Blk. 178, T. C. R. R. Sur., elev. 2,507 ft.....Top salt 640 ft; bottom salt 1,-104 ft; drlg., 1,600 ft; gas show 1,780-92 ft.
Benedum & Trees' No. 1 J. C. Trees, C NW SE SE Sec. 30, Blk. 7, H. & G. Sur., elev. 2,556 ft.....T.D., 3,115 ft; flowing sulphur water; rerunning 6-in.
Buell and others' No. 1 Batcheler, C N half NE Sec. 89, Blk. OW, G. C. & S. F. Sur., elev. 3,188 ft.....Show oil 1,700 ft; flowed sulphur water 1,775 ft; repairing engine 2,045 ft.
Buell & Hagan's No. 1 McKenzie, Sec. 8, Blk. 604, Mrs. A. L. Canon Sur., elev. 3,009 ft.....Drlg., 930 ft.
Buell & Hagan's No. 1 Jasper, 1 mile south and west NE cor. Jasper Co. School Land No. 104.....Location.
California Co.'s No. 1 Union Land Co., C NE NW NW Sec. 10, Blk. 141, T. C. R. R. Sur., elev. 2,615 ft.....Top salt 834 ft.; top dolomite 1,-442 ft; 2 bailers sulphur water per hr. 1,550 ft; sulphur water 1,737 ft; flowing sulphur water 1,740 ft; drlg., 1,780 ft.
Cromwell & Kimberlin's No. 1 Blackman., C NW Sec. 24, Blk. 3, H. & T. C. Sur., elev. 2,393 ft.....Top salt 890 ft; drlg., 1,535 ft. in red beds.
M. C. Dibble & Hale's No. 1 Bonebrake.....Moving in tools.
Geo. A. Henshaw, Jr., No. 1 I. G. Yates, 330 ft. S and 1,650 ft. E of NW cor. Sec. 544, Blk. 1, I. & G. N. Sur.....Top salt 525 ft.; drlg., 900 ft.
Humble O. & R. Co. and Kirby Oil Co's No. 1 J. T. McElroy, NW SW SE Sec. 124, Blk. 10, H. & G. N. Sur.....Rig; moving in tools.
Del Rio Drilling Synd.'s No. 1 K. C. & Ft. Stockton, C SW, Sec. 19, Blk. 178, T. C. Sur.....S.D., 740 ft.
Garland & Mott's No. 1 El Paso Cattle Loan Co., C NE Sec. 26, Blk. 126, T. & S. L. Sur.....Location.
Kershaw & Livingston's No. 1 Canon, SW cor. NE Sec. 54, Blk. A-2, T. C. R. R. Sur.....Location.
Mid-Kansas O. & G. Co.'s No. 1 Smith Taylor, elev. 2,645 ft.....S.D. for water, 490 ft.
Mid-Kansas O. & G. Co.'s No. 4 Yates A, elev. 2,552 ft.....Drlg., 845 ft.
Mid-Kansas O. & G. Co.'s No. 1 Yates C (was No. 1 Acct. 3), elev. 2,327 ft.....Drlg., 860 ft; no salt; running high.
Pecos Big 3 Oil Co.'s No. 1 Robertson.....Location.
Pecos Big 3 Oil Co.'s No. 1 Holmes.....Location.
Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addition Sur. Ft. Stockton.....S.D., 3,440 ft.
Quinby Oil Co.'s No. 2 Bennett, C NW 592, Blk. 105, G. C. & S. F. Sur., elev. 2,560 ft.....200 ft. oil in hole from 1,216 ft; shot 20 qts. 1,208-20 ft; S.D., 1,456 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. north and 1,320 ft. east SW cor. Sec. 593, Abst. 3,009.....S.D., 563 ft.
Texon O. & L. Co.'s No. 2 I. G. Yates.....Top salt 430 ft.; drlg., 960 ft.
Texon O. & L. Co.'s No. 3 I. G. Yates.....Location.
Texon O. & L. Co. and Marland Oil Co.'s No. 1 Blakesley.....Drlg., 630 ft.
John Dropplemann's No. 1 Mrs. L. Hershenson, Sec. 7, Blk. 51, T. & P. Sur., T-1-S.....Drlg., 1,230 ft.
World Oil Co.'s No. 1 Serf, SW cor. NE Sec. 10, Blk. 130, T. & St. L., elev. 3,425 ft.....Moving in material.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle est.....(Reported abandoned in January) now U.R. 6-in.; T.D., 2,550 ft.

REAGAN COUNTY

The Texas Company's No. 2 J. D. Sugg, C Sec. 87, Blk. 2, T. & P. Sur.....Top salt 860 ft; top lime 2,110 ft; hole full sulphur water 2,130-50 ft; 1,000 ft. sulphur water 2,830-35 ft; S.D., 3,065 ft. tools in hole.
Tidal Oil Co.'s No. 1 University, NW cor. NE Sec. 20, Blk. 8.....Drlg., 950 ft.

REEVES COUNTY

Deep Rock Oil Co.'s No. 1 Caldwell, C SW Sec. 22, Blk. 58, T. & P. Sur., Twp. 8.....S.D., 3,505 ft.
Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Pub. Sch. Ld.....Spudded 20 ft. and S.D.
Humble O. & R. Co.'s No. 1-B Kloh, C NE Sec. 47, Blk. 56, T. & P. Sur. T-2-S, elev. 2,781 ft.....900 ft. sulphur water 1,760-1,800 ft; trying to shut off water.
World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Pub. Sch. Ld. Sur., elev. 3,068 ft.....Drlg. new hole, 1,200 ft.

RUNNELS COUNTY

Associated Pet. Co.'s (was Bell & Moore's No. 1 W. W. King, 1,200 ft. W of NE cor. Lge. 14, J. V. Cobrera Sur.....Spudded and S.D.
Moore & Bell's No. 1 Ferguson, 2,640 ft. S and 1,320 ft. E of NW cor. F. J. Ford Sur. No. 152.....Spudded and S.D.
Lou Ladd et al's (was Frank Yates') No. 1 R. M. McMillan.....Small show oil and gas 545-62 ft. and 590 ft; S.D. for casing shoe 1,400 ft; hole full salt water.

SCHLEICHER COUNTY

Beavers & Leath and others' No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur.....Spudded and S.D.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur.....Spudded and S.D.; drlg. water well.

SCURRY COUNTY

Northwest Co.'s No. 1 T. C. Stinson, NE NW SW, Sec. 101, Blk. 97, H. & T. C. Sur.....Tested 8 bbls. 1,745 ft; another pay at 3,402-07 ft; bailed 70 bbls. oil in 4 hrs. and bailed dry; S.D., 4,170 ft.

STERLING COUNTY

J. P. Williams' No. 1 Clark, NE NE SW Sec. 7, Blk. 8, G. C. & S. F. Sur.....S.D., 1,000 ft.
L. Little's No. 1 Fisher Bros.....Rigging up machine.

STONEWALL COUNTY

McCamey & Zoch's No. 1 J. Ward, C SW Sec. 153, Mrs. Ward Dobbs Sur., 3 miles NW of Aspermont.....Drlg., 620 ft.

TAYLOR COUNTY

City of Abilene's No. 1 fee, NW SW SE Sec. 66, Lunatic Asylum.....S.D., 2,264 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C N 100 acres, Sec. 23, Blk. 19, T. & P. Sur.; elev. 1,904 ft.....S.D., 455 ft.
Gibson & Johnson's No. 1 Hendry.....Drlg., 1,080 ft.
Grisham & Hunter's No. 1 D. D. Huddleston, CWL Lot 29, League 146, Grimes Co. Sch. Ld.....Small show oil 2,332 ft; T.D., 2,-585 ft; 6-in. froze; S.D.
W. E. Halbert et al's No. 1 Hunt, C SE Sec. 124, Blk. 64, H. & T. C. Sur.....Drlg., 1,960 ft.
Humble O. & R. Co.'s No. 1 Mattie Jacobs.....U.R. casing, 1,925 ft.
Midwest Explin. Co.'s No. 1 Dora Smith, Jose Gabo. Sur.....C.O., 2,023 ft.
Midwest Explin. Co.'s No. 1 Toombes, Alex Thompson Sur. No. 37.....S.D., 1,780 ft.
Mitchell & Breene's No. 1 Tittle.....Location.
Morrison & Thompson's No. 1 Mrs. Alice Rose, SW cor. NE Sec. 29, Blk. 19, T. & P. Sur.; elev. 1,925 ft.....Drlg., 2,320 ft.
Owen & Sloan's No. 1 Lattimer.....S.D., 715 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W half NW Sec. 64, Blk. 5, T. & P. Sur.....S.D. for fuel, 710 ft.
Sanger O. & R. Co.'s No. 1 Ike Brown NE cor. Sec. 54, Blind Asylum Land.....S.D., 1,900 ft. tools in hole.
Sanger O. & R. Co.'s No. 1 Gillespie, Sec. 7, Lunatic Asylum Land.....S.D., 4,100 ft.
World Oil Co.'s No. 1 J. R. Griffith SW cor. NE Sec. 32, Blind Asylum Land; elev. 1,747 ft.....Drlg., 1,220 ft.

TERRELL COUNTY

E. T. Williams et al's No. 1 Robertson, C NE Sec. 71, Blk. D-10, T. C. Sur.....S.D., 3,154 ft.

TERRY COUNTY

Kingsland Oil & Potash Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. & R. R. Sur.....S.D., 1,235 ft.

TOM GREEN COUNTY

Fitzgerald et al's No. 1 Bennett.....Rig.
Marland Oil Co.'s No. 1 Llano, 3,500 ft. S and 13,000 ft. W of NE cor. Llano Co. Sch. Ld. No. 964.....Drlg., 1,350 ft.

UPTON COUNTY

Beaty et al's No. 1 J. F. Lane.....Top salt 880 ft; sulphur water 2,-370 ft; show oil 2,250-65 ft; S.R., 2,440 ft.
W. W. Donnelly et al's No. 1 University, C SW Sec. 21, Blk. 4, University.....Top salt 1,560 ft; fish. tools, 3,-165 ft.
Gulf Prod. Co.'s No. 1 J. T. McElroy-B, C SW NE Sec. 187, Blk. F.....Top salt 1,220 ft; T.D., 2,821 ft; cementing 6-in.
Hults et al's No. 1 Giddings, C Sub. Sec. 12, Throckmorton Co. Sch. Lnd.....Top salt 1,515 ft; S.D., 3,165 ft. for pipe.
Marland Oil Co.'s No. 3 Burleson, T. C. Jones Sur. No. 100.....First pay 2,205 ft; sec. pay 2,295 ft; 2,000 ft. sulphur water 3,-390-95 ft; 1,000 ft. sulphur water 4,135 ft; drlg., 4,326 ft.
Marland Oil Co.'s No. 34 Burleson, Sec. 100, T. C. Jones Sur.....S.D., 3,255 ft.
Marland Oil Co.'s No. 3 Benton Land, Julia Prater Sur. No. 1.....S.D., 515 ft.
Prairie O. & G. Co.'s No. 1 Lane-C, NW cor. SW SW Sec. 3, G. C. & S. F. Sur.....Top salt 465 ft; show oil 1,840 ft. and 1,845 ft. and 1,867 ft; drlg.
Sartain & Davis' No. 1 Bull, SW NE Sec. 48, Blk. 41, T. & P. Sur.....Rig burned 3,290 ft; rebuilt.
Simms Oil Co.'s No. 1 B. C. Clark.....Spudded.
Snowden & McSweeney's No. 1 R. S. Hughes, NW cor. their 80 acres in Sec. 4, William Teer Sur.....Top salt 585 ft; show oil 2,222-27 ft; drlg. lime, 2,255 ft.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore est., Sec. 163, J. Mitchell Sur.....S.D., 3,000 ft.
Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur.....S.D., 2,603 ft.
Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 82, Blk. A, I. & G. N. Sur.....S.D., 2,430 ft.
East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur.....S.D., 3,142 ft; rig down.
Hiawatha Oil Co.'s No. 1 Sellars, C Sec. 1,031, Blk. A, I. & G. N. Sur.....Hole full salt water, 2,455 ft; S.D., 2,555 ft.
Independent O. & G. Co.'s No. 1 Whitehead, Sec. 81, Blk. D, G. C. & S. F. Sur.....Rig.
Independent Operators' No. 1 Whitehead, SE SE Sec. 36, Blk. 4, I. & G. N. Sur.....S.D., 3,900 ft.
O. O. Owens' No. 1 Mills.....Drlg., 2,035 ft.

WARD COUNTY

Marland Oil Co.'s No. 1 J. Sealey, C SE Sec. 78, Blk. A, G. M. M. & A. Sur.; elev. 2,820 ft.....Hole full fresh water 970-80 ft; top salt 1,100 ft; S.D., 2,934 ft. for 6-in. casing.

WINKLER COUNTY

Champlin Drlg. Co.'s No. 1 C. W. Cowden, C SW Sec. 21, Blk. C-23, Pub. Sch. Ld., elev. 2,889 ft.....Drlg., 1,440 ft.
Group 1 Humble O. & R. Co.'s No. 1 T. G. Hendricks, C SE Sec. 36, Blk. 27.....T.D., 318 ft; run. 12-in.
Humble O. & R. Co.'s No. 1 T. G. Hendricks, S and W NE cor. W half NE Sec. 33, Blk. B-5, Pub. Sch. Ld. Rig.
Independent O. & G. Co.'s No. 1 Hendricks, Sec. 42, Blk. B-5, Pub. Sch. Ld.....Top lime 2,790 ft; first gas 2,797 ft., 3,000,000 ft. at 2,815 ft; started spraying oil 2,824 ft; flowing.
Independent O. & G. Co.'s No. 1 Hendricks-A.....Rig.
Llano Oil Co.'s No. 1 Scarborough, C Sec. 1, Blk. C-22, Pub. Sch. Ld., elev. 2,921 ft.....Top salt 1,115 ft; hole full water, 1,321 ft; 10-in. set 1,570 ft; run 8-in. 2,671 ft., smell of oil.
McCullough Oil Co.'s No. 1 Tobe Morton, CEL Sec. 20, Blk. B-12, Pub. Sch. Ld.....Set 10-in. 1,420 ft; drlg., 1,765 ft.
L. D. Ladd, Hill et al's No. 1 Amburgey, C NW Sec. 24, Blk. B-7, Pub. Sch. Ld. Sur., elev. 3,033 ft.....Top salt 1,220 ft; top lime 3,365 ft; T.D., 3,447 ft; rig burned.
R. S. Matthews et al's No. 1 State, C Sec. 7, Blk. A-57, Pub. Sch. Ld. Sur., elev. 3,120 ft.....Second hole 200 ft; S.D.
Pure Oil Co.'s No. 1 Hendricks, SW cor. Sec. 41, Blk. B-5, Pub. Sch. Ld.....Drlg., 650 ft.
Skelly Oil Co.'s No. 1 M. M. Leeman, 1,320 ft. east of SW cor. Sec. 21, Blk. 75, elev. 2,951 ft.....Top salt 1,167 ft; drlg., 3,290 ft. in salt.
Southern Crude Oil Pur. Co.'s No. 1-C (was No. 2) Hendricks, NE cor. Sec. 33, Blk. B-5, Pub. Sch.....Top salt 1,910 ft; top pay 2,915 ft; started flowing at 2,924 ft; flowed 1,104 bbls. April 13; 917 bbls. April 14; 777 bbls. April 15; gravity 28.8° at 64; drlg., 2,952 ft; flowed 800 bbls. April 21.
Southern Crude Oil Pur. Co.'s No. 2-C (was No. 3) Hendricks, Sec. 33, Blk. B-5.....Top salt 1,901 ft; standardizing 2,553 ft.
Southern Crude Oil Pur. Co.'s No. 3-C Hendricks, SE cor. NE Sec. 33, Blk. B-5.....Top salt 1,870 ft; drlg., 2,100 ft.
Southern Crude Oil Pur. Co.'s No. 1 Hendricks-B, SE cor. NE Sec. 44, Blk. 26.....Drlg., 1,190 ft.
Texon O. & L. Co.'s No. 1 Central State Bank SW cor. W half SE Sec. 41, Blk. B-5.....Moving in tools.
White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 R. A. Lock, 1,320 ft. west of NE cor. Sec. 30, Blk. 74, northwest of discovery well.....Rigging up.

CONFIDENCE SHOWN BY BANKERS IN PETROLEUM BOND BUYING

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Apr. 23.—The floating of a $50,000,000 bond issue of the Shell Union Oil Corp. recently is taken in banking quarters as an expression of banking confidence in the petroleum business. Another recent issue having similar significance, in the opinion of bankers, was the sale of $25,000,000 bonds of the Humble Oil & Refining Co.

The problem of the oil business, from the viewpoint of profitable operation, is that of operating economically so that there remains a reasonable balance after expenses. Leading bankers believe this principle of successful operation is being applied, and some are more disposed to extend financial assistance to sound enterprises than heretofore.

Many are still disposed to regard the oil business as an entity entirely apart from all other businesses, operating independently, and even, as has been suggested, in opposition to other businesses. On the contrary, the trend in the petroleum industry has been toward co-operation as between it and other businesses. The necessity of this is obvious to all who have studied developments of the past few years from a generally disinterested viewpoint.

Co-operation Between Industries

It has been recognized for years, and especially since the World War, that co-operation between industries was not only desirable, but absolutely essential to the success of all of them. Just as the fuel is a necessary part of the operation of a motor vehicle, so has it been recognized that the oil business is essential to the automotive industry. From this point on, it has been an obvious move for the two industries to get together on problems concerning both. The upshot will be a better automobile and a better fuel, with consequent benefit to the oil industry, the motor industry, and the public. This is only one example of recent co-operation between industries.

The next great step now in progress is the co-operation between the automotive industry, the oil industry and the chemical industry. This is bringing about gradual but revolutionary changes in the oil business, as well as the others. The great oil companies are alive to this situation and are laying their plans accordingly. In the opinion of oil leaders, the result will be a new era of prosperity based, however, on different principles than previous ones.

Bankers have an extremely important place in these developments, representing as they do the investment public, a public which is at the same time a consuming public. It is naturally essential that the big industries work in close accord with the banking industry. This is as true of oil as any other. Hence, the ready public response to recent large oil flotations has an important bearing on the future of the petroleum industry.

In handling flotations involving many millions of dollars, banks do so with their eyes open. It is taken for granted that no great financial house will sponsor a big bond issue unless it feels such an issue represents a sound enterprise, capably managed and representing a business in which there is a reasonable margin of profit. Bankers, constituting the personal element in such transactions, would undertake no such transaction without having a close personal contact with leaders in the oil business. It is therefore reasonable to assume that in the case of recent large oil flotations the bankers were assured that the oil business is sound and will continue to grow in the future as it has in the past.

Gasoline and Fuel Oil

In connection with recent developments in the oil industry, one of the most important seems to involve the question of the future oil supply and its bearing on the prices of gasoline and fuel oil. As this promises to be one of the outstanding factors in determination of the future prosperity of the oil business, it is also one of the questions discussed freely between leading men in the oil industry, the chemical industry, the motor industry and the banking industry.

One school of thought in this connection is that the future supply of crude petroleum to be recovered through drilling is limited, and that therefore it is wasteful to use oil today as fuel under boilers. Another school says that this should be decided by the law of supply and demand, and that if oil can compete in price with coal, for instance, it is right to use oil in place of coal.

At present, whatever the majority of opinion, the leading oil companies seem committed to the policy of pushing sales of fuel oil. It is expected that the result of this will be increased consumption of fuel oil, and they look for this to help correct the present overproduction of petroleum.

Later, if it is found that the supply of crude oil is no longer adequate to supply the demand for fuel oil in addition to that for the many other products of petroleum, they believe the immense coal resources can be brought into play.

It is pointed out that the present overproduction of crude oil is chargeable to a few big flush pools, which cannot be depended upon to produce indefinitely at a high rate. Leaders in the petroleum industry regard these flush fields as being the cause of present low prices of oil products, and they regard these low prices as no more permanent than the output of the flush fields.

Hence, efforts are being made to co-operate with other industries in insuring an adequate supply of gasoline when these flush fields are no longer producing at a high rate. They must necessarily run the risk of the flush production continuing longer than expected, but if it does, a greater demand for fuel oil will lessen the seriousness of this risk.

Chemical Development

Leading oil companies are now working closely with the automotive and chemical industries in an effort to develop the efficiency of motor fuel to the highest degree. At present some progress has been made, but not yet of a revolutionary character. Many gasolines in which chemicals are used are now on sale. But their actual use is by no means widespread. It is generally recognized, however, that the present automobile engine and fuel are far from ideal, although they are the best that can yet be developed on a mass scale.

At the same time leading oil companies are taking cognizance of the possible use of fuels from other sources than crude oil if the price of gasoline should be forced up through a temporary shortage. Benzol, a by-product of coal, is an important gasoline substitute, and it is said that some leading oil concerns are taking more than a passive interest in the development of benzol production in the United States. It is even possible that, in time, oil companies will be important buyers of benzol themselves.

In this connection it is reported that the Standard Oil Co. of New Jersey has taken an interest in benzol development in Germany, with a view of marketing the product there. This is taken as a sign of the present trend. Some leading oil concerns are understood to control important patents covering the manufacture of oil from coal, and will be prepared to co-operate with the coal companies in case there is a shortage of gasoline.

As an upshot of the co-operation between industries, the oil industry has found for itself a new field in the development of synthetic products from oil mixed with chemicals. It is generally known that the leading oil companies carry on laboratory experiments continuously, and that some of them have developed many new products in recent years

A list of chemical products containing crude oil or its distillates include such a wide range as lacquers, chemical solvents, rubber solvent, alcohol derivatives and numerous diverse forms of medicinal oils.

Important Economic Significance

While the balance between total crude oil production and total consumption will prove the deciding element in the price of crude petroleum, these other developments, affecting consumption, are likely to bring about important changes in the relative values of petroleum products. From the viewpoint of profits, therefore, the oil companies cannot afford to underestimate the influence that these developments may have.

For example, if the "miscellaneous" products of oil should grow to 25 per cent of the total volume of consumption it would have a bearing on the price of gasoline. These miscellaneous products are in many instances highly profitable and if the volume could be increased, refiners might be able to make equal profits in the face of lower gasoline prices. There are many other possibilities, too numerous to mention. There is one development that has advanced to a degree which merits immediate attention. That is, the recent growing recognition that all gasoline is not just "gas." The oil industry, and the public, are becoming gradually aware that there must be discrimination between grades of gasoline. They are gradually being schooled to the idea that certain gasolines fit one need better than another.

To students of any business, the trend toward specialization and discrimination is always regarded as a sign of progress. It is emphasized, however, that the oil business is developing in this way largely through co-operation with other industries. If the oil business neglected to move toward efficiency and co-operation it might well feel itself going backward, in the opinion of bankers and oil men. But there is every evidence that those who are in the closest touch with modern industrial developments have extreme faith that the petroleum industry is alive to these things, and that it will progress accordingly.

LATE FIELDS

(Continued from Page 40)

the west side of the Trinity River in the South Liberty-South Dayton section, is flowing 560 bbls. at 3,970 feet.

The Humble Oil & Refining Co.'s No. 1 Merchant in the Hull Pool, a work over, is a 10-bbl. well at 4,150 feet.

Kent & Middleton's No. 1, located within the limits of the town of Rockdale in the Rockdale-Minerva Field in Milam County, is good for 100 bbls. initial at 1,437 feet.

Independent wildcatters are starting three tests in Colorado County. Two locations have been southeast of Wiemar and one in the Borden section.

Work on the fabrication of 10 steel tanks of 80,000 bbls. each has been started by the Petroleum Iron Works at its Beaumont plants. They have been ordered by The Texas Company. Eight of them will be used to replace old earthen storage in the Humble Pool, and two will be erected at the Port Arthur refining plant of the company. The Petroleum Iron Works recently erected a fabrication plant at Beaumont.

The forthcoming special session of the Texas legislature, which will convene next month, will be flooded with bills to regulate the oil industry, especially the transportation end of it. One of these, framed by Fort Worth men, will seek to make storage public utilities, the same as the pipe lines. Its purpose will be to compel the pipe lines to store oil run into the lines at a regular rate per month, the same as in Pennsylvania and West Virginia. At present, producers receive checks for their oil every month. The plan proposed, operators says, would enable them to store their crude temporarily at monthly rates fixed by law during temporary depressions.

CALIFORNIA

LOS ANGELES, Calif., Apr. 26.—Two producing wells finished a few days ago in Seal Beach Field have been shut in as the operators were unable to dispose of the output. The completion of several new wells in that district is anticipated in the next few days.

The Miley Exploration Co.'s No. 4 second Tecolote in the Goleta Field blew in late yesterday and literally sprayed the surrounding area with casinghead gasoline. The well was drilled to 1,456 feet, and the cement had just been drilled out. The well was later capped, and it is at present time flowing at rate of 500 bbls. a day, the oil being clean and testing 43 degrees gravity. This oil, it will be recalled, averages approximately 60 per cent gasoline.

ARTESIA, NEW MEXICO

ARTESIA, N. Mex., Apr. 26.—New Mexico's latest wildcat to pick up an oil sand is the Henderson, Dexter Blair Inc. No. 1 Wyatt permit well in SW cor., Section 34-17-33, which drilled into a pay at 4,832 feet. The hole is standing 500 feet in oil and attracting considerable attention. This well is 7 miles southeast of the Maljamar discovery well and a like distance southwest from the Inglefield Bridge's No. 1 well.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Apr. 26.—The Texas Company's No. 5 Jennings, in Zapata County south of the Jennings gas field, reported in wildcat reports as a failure when casing and liner were set and an attempt made to bring it in after it had showed considerable oil on a test, is being given a second chance. After setting casing and liner the well bailed dry and the next morning when bailed again showed only a little oil. Liner was pulled and the hole drilled to 1,450 feet in 34 feet of sand and liner was reset and the well is testing again. J. H. Winch is moving tools to the Comitas grant which adjoins the Texas block of leases and will start a test.

NORTH AND WEST TEXAS

FORT WORTH, Tex., Apr. 26. — In King County, Phillips Petroleum Co.'s No. 1 Burnett is drilling 2,380 feet; Gibson & Johnson, 1,165 feet; White Eagle, 1,280 feet; Pattison, 1,340 feet.

In Ector County J. S. Cosden's No 2 Connell-A topped salt at 870 feet.

In Andrews County Maer and Staniforth's No. 1 Taylor is drilling at 3,010 feet in red rock and lime.

In Winkler County Skelly Oil Co.'s No. 1 Leeman is drilling at 3,625 feet.

On the east side of the Church-Fields Pool, Crane County, Simms and Atlantic's No. 1 University-C was shot with 120 quarts at 2,902-52 feet and was flowing 835 bbls. Sunday.

Eastland Oil Co. and Collett's No. 1 produced 110,081 bbls. From January 30 to April 1 at an average price of 85 cents. On a three-hour gauge Sunday it flowed 110 bbls. hourly and has been flowing steadily since. Simms and Atlantic's No. 2, northwest offset, was put on air. Gulf, Simms and Humble each have one well in this pool on air, while the Eastland Oil Co. and Tidal also have compressors on the ground and all five companies are building plants.

OIL WELL SUPPLY ELECTION

PITTSBURGH, Pa., Apr. 23.—At the annual meeting of the Oil Well Supply Co., A. H. Beale, E. M. Byers, Ernest Hillman, J. H. Hillman, Jr., and A. B. Sheets were elected directors. Retiring directors were re-elected. The directors elected J. H. Hillman, Jr., vice president; E. W. Criswell, secretary, and W. W. Anderson, assistant secretary.

MUST AGAIN APPEAL TO PEOPLE AGAINST UNFAIR LEGISLATION

The Mid-Continent Oil & Gas Association, through its members, is conducting a very general mail campaign against the proposed referendum of a bill to increase the taxes against the oil producing industry in the State of Oklahoma.

People, generally, are being asked to refuse to sign the petitions which are being or will be circulated about the state, as the surest way of killing off the proposed measure is to make it impossible for the signature peddlers to get enough names on the petitions.

Text of the Bill

The text of the proposed bill is as follows:

BE IT ENACTED BY THE PEOPLE OF THE STATE OF OKLAHOMA:

Section 1. There is hereby adopted a new section to the Constitution of Oklahoma, to be known as Section 12-B of Article 10, as follows:

Section 12-B. In addition to other taxes now or hereafter legally levied, there is hereby levied a severance tax of 2 percentum of the value of all natural gas and crude petroleum and other mineral oil, and 1 percentum of the value of all ores bearing lead, zinc, jack, gold, silver or copper, and 1 percentum of the value of all asphalt, produced from the soil. Such tax shall be paid within 30 days after the expiration of each quarter-annual period, expiring respectively on the last day of March, June, September and December of each year. The market value of the said natural products at the time of severance and the place of production shall be the basis of assessment. Such tax shall be paid by the producer of such natural products, except that the tax on the royalty interest shall be paid by the land or royalty owner. Such tax shall be collected by the State Auditor in the manner provided by law for the collection of gross production tax upon said natural products. The State Auditor shall pay the same into the Treasury of the state. One-half of such taxes shall be credited to the common school fund of the state and shall become and remain a part of the permanent school fund of the state, provided that the Legislature shall have the power to provide, from time to time, that of such taxes collected during any year or years, one-half of such school tax may be currently distributed and used for the maintenance of the common schools as provided in Section 3 of Article 11, of the Constitution, during the year in which collected. The remaining one-half of such taxes shall be used under the direction and supervision of the State Highway Commission for the construction and maintenance of permanent highways, at least one-half of which shall be used and expended in the county in which produced.

Products upon which the severance tax herein levied has been paid, together with tankage or other equipment for storing the same, shall be exempt from payment of any and all ad valorem tax in this state except that a tax of not to exceed 2 mills upon each $1 value of such property may be annually levied in aid of the common schools of the district in which such property is located. All machinery, appliances and buildings used in refining or processing such products shall be exempt from all ad valorem tax except one-tenth of one percentum of the value thereof, which said one-tenth of one percentum may be levied by the County Excise Board and collected by the County Treasurer to aid in maintaining county government in the county wherein any such property is located. This exemption shall not exceed to the land upon which any of such property is located.

The tax herein is for the privilege of separating and removing such products from their natural bed or original source of supply and said tax shall be paid upon all of such products so separated and removed whether such products are reduced to possession or permitted to escape.

Until otherwise provided by law it shall be the duty of the State Auditor to have each well from which oil or gas is escaping unmetered, properly equipped for measuring all such escaping products and to collect the tax thereon, based upon the value of such products if reduced to possession, also to charge to and collect from the party or parties owning or operating such well, in the same manner as the tax herein levied is collected, all costs incurred in providing, installing and operating such measuring device and equipment.

From the proceeds of the tax herein levied, deductible before same is apportioned, there is hereby appropriated the sum of $50,000 annually, or so much thereof as may be necessary to enable the State Auditor to properly perform the duties herein provided. The Legislature shall have power to increase or decrease such appropriation for future years as necessity may demand.

THE RAMBLIN' ROCK HOUND

By Clyde M. Becker

FIRST EPISODE

The Ramblin' Rockhound cocked his eye
At the rockribbed hills as he rambled by
In his rusty Ford of venerable mien
And model of postpliocene.

He stopped his bus and says "By heck!
There's east dip here most hounds could check;
I'll grab my Locke and Aneroid,
And prove her good, or null and void."

The sun was hot, the blackjacks high:
The chiggers they smote him hip and thigh,
And his Aneroid bubbled around with joy,
To befuddle the brain of this poor boy.

Then he met a bull, the rest is sad—
He missed some data he shoulda had;
With form and speed he departed thence,
But left his pants on a barbed wire fence.

His soul was stirred and filled with scorn;
He cursed the day that bull was born;
But still he toiled mid bugs and heat
And made strange marks on his lefax sheet.

Now he hires a kid—a smart young blade,
Who claims he's a slicker with an alidade.
He worked right fast and his notes were neat,
But he couldn't close his traverse within 40 feet.

That Rockhound roared and groaned with pain,
He tore his hair and got profane;
And he took a day to show this kid
How shootin' with an alidade oughta be did.

So he made his map, this old Rockhound,
And drew nine closures all around;
I'll tell you birds she sure looked keen—
That quaquaversal structure was a peacherine.

SECOND EPISODE

Next he hires a guy to help him lease,
With conversation slick as grease;
Whose line of bull was built to please,
His logic strong like limburg cheese.

He took those nesters 'round and 'round,
And up and down that battleground,
In cowlots, stys, 'mid porkers' squeals,
He spoke of home and high ideals.

With truth and verity he told
Stock yarns about the flowing gold,
And nearly paralyzed his jaw
On Drumright, Burbank, Tonkawa.

This poor guy, his name is Shouse,
Talks till he almost goes bughouse.
Nine kinds of rotten booze he kills;
Yet spends his night in nervous chills.

For one old rooster, he won't lease;
He says he doesn't want no grease;
And then to sorta help his line,
He claims his woman wouldn't sign.

But Shouse, at last, he lands this goof,
Escrows his lease in bank as proof.
Then goes and gives himself the gate
To Cuba to recuperate.

THIRD EPISODE

Our hero gets his titles straight
And starts out to negotiate.
His inside stuff, finance his hole,
But fear there was within his soul.

In office halls he cools his heels,
While the other boys put up their deals.
Then, when the hello girl calls time
He bows his neck and hits the line.

Just like old Matty in the box,
He pitched him one to H. Wilcox.
The Amerada, Aztec, Pure
He thought he'd sell the Tidal sure—
The Texas, Twin State, Cosden, Kay,
Magnolia, Marland and Margay,
Wrightsman, Roxana, Hull, Comar,
The Barnsdall, Butram, Bu-Vi-Bar,
Devonian, Dixie and Dutch Shell,
The Gypsy, Gulf and Gladys Belle,
Sun, Sinclair, Skelly, Slick—
He traded till his head was sick.
This boy he does the best he can
With Carter, Coline and McMan.
The Prairie, Phillips and Black Gold,
Some birds were hot and some were cold;
Some sent their rockhounds down first hand
To sorta view the promised land,
And check his north and southeast dips,
And look for correlation slips.

FOURTH EPISODE

So now it's rockhounds round and round,
Are tearing up that battleground.
They argue, lecture, parleyvoo,
Some say they don't some say they do.
Some say she is, some say she ain't,
Vocabulate without restraint.
Some turn it down, ah, lack-a-day—
Some say they'll recommend the play,
And so from all the weary mess,
His efforts meet with some success,
And from the best that he can tell,
He figures he can drill the well.

FIFTH EPISODE

The derrick's up, the hole starts down
In country, village, hamlet, town—
The only thing the nesters tell:
"We're boring down our first oil well."

Each one puts on his Sunday vest,
And saunters forth to view the test.
With joy and pride their bosoms swell,
"They're boring down their first oil well."

SIXTH EPISODE

Near contract depth they had a show,
Their hopes rose high—she made one flow.
They drilled on in and hope dropped dead
"Pacific Ocean," the driller said.
That rockhound heaved a soulful sigh,
And swore he knew that log ran high.
The drillers said, "That lime and shale
Sure makes us think we're on the trail."
The scouts all said, "She made one flow,
We'll recommend she ought to go
Down to the Wilcox sand or lime,
That's how we figured all the time."
The crew speaks up it'll work for beans,
The big boys dig down in their jeans.
An independent furnished oil
To sorta make the old pot boil.
So once again they're making hole,
Just as the nesters—bless their soul—
Began to weep, lament, harangue,
"They ought to sue the whole shebang."

One night there rose from the dark hole
Perfume that stirs an oil man's soul.
A mist up around the driller's head:
Gas from live oil the rockhound said.
And then they saw the cable slack,
"They're comin' out," yelled Wire Line Jack.
And the toolie jumped to pull his fire,
Then headed where the woods are higher,
And as the others went from there
The tools and cable took the air.
With a rip and roar, a kick and cough—
The Wilcox sand was paying off.

FINALE

There is some news that travels fast
Of great good luck or sad disaster;
But work of Gabriel's final blast,
Could never get there any faster,
And long before the crack of day
They'd heard the boys had got the pay.
And they balled the jack in a heck of a rush
To see that gas durn dry hole gush.
And each one came with mind intent
To celebrate the glad event.
And those who stood by understood
Why oil men all are a brotherhood.

NEW COUNTERBALANCED CRANK INTRODUCED

The R. D. Nuttall Co. of Pittsburgh, Pa., has recently developed a counterbalanced crank to be used with their double reduction units for oil well pumping. The need for a counterbalance in this service arises from the fact that power is transmitted through a crank by a single acting walking beam, which gives a cycle of operation tapering from a maximum load, when the string of sucker rods and their load of fluid are being lifted in the well, to a minimum load on the downward travel of the sucker rods. The speed of the motor, naturally, falls while under load, and in the opposite half of the cycle is accelerated by the

pull of the rods. Thus, the motor is subjected to very uneven torques and to sudden application and recession of loads, with a consequent detriment to its life and efficiency.

The static load, the weight of the rods plus that of the fluid pumped, is variable. It will vary not only in the different wells, but from time to time in the same well. The Nuttall company has designed the new counterbalance to compensate for this variation.

The counterbalance consists of three sections, a heavy main section, which is the crank proper, and two adjustable wings. The heavy main section is drilled in the same manner as a six-hole crank, and it is pressed on the slow speed shaft of the double reduction unit in exactly the same manner. This section serves as a fixed balance against the weight of the rods and their load of fluid. The variations in the load are cared for by the two movable wings, which can be rotated about a collar on the central section; these wings can be moved to any desired position and held fixed by a bolt. Thus, by moving the wings, any variation in balance can be obtained As the two wing sections are equal in weight to the main section, during bailing or cleaning operations it is possible to move them opposite to the heavy section and secure, in effect, a fly wheel.

SASKATCHEWAN LEASES

In the fiscal year ended April 30, more than 100,000 acres of land in various parts of Saskatchewan have been leased under the Federal petroleum and gas regulations. Since then a large acreage has been placed under lease in the Lloydminister district, where wells are being drilled in quest of oil.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

LUBRICANT FOR AUTOMOBILE TRANSMISSION

I am endeavoring to develop the best type of lubricant for the transmission of an automobile for use the entire year. Would an oil of 240 viscosity at 210 Fahrenheit work well in summer and a zero cold test do the trick in winter?—R.E.G.

If you can prepare an oil having these characteristics it should be satisfactory. There are numerous oils which have been found satisfactory for lubricating the transmission of automobiles. Most of the trouble encountered has been traced to small volume and where the oil level has been too low to sufficiently cover the gears or to give enough splash to reach all of the parts needing the lubricant. There is a special reason for the use of heavy oil in that leakage is more liable to be excessive when thin oil is used. On the other hand, very heavy oils and greases do not distribute thoroughly so dry surfaces may form when these are used as lubricants.

Many of the oils used for lubricating the transmission, including the differential in this term, have a high cold test. For this particular service there does not appear to be any special reason for making zero cold test oils. The oils that have a poor test of about 30 Fahrenheit behave somewhat like grease when the temperature is very low, but soon after the engine gets into operation enough heat reaches the oil so that a semifluid is produced and complete lubrication is obtained.

BRITISH THERMAL UNIT DEFINED

Is there any difference between the ordinary definition of the B.t.u. and that of science?—A. R.

The quantitative expression for heat is commonly defined as the quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. A more exact statement is that it is equivalent to 1/180th of the quantity of heat used to raise one pound of pure water from the freezing point, 32 degrees Fahrenheit, to the boiling point, 212 degrees Fahrenheit when both are under standard conditions of pressure.

Most scientific temperature work involves the Centigrade system and the calorie. The calorie may be defined as 1/100th of the quantity of heat required to raise the temperature of one kilogram of pure water from zero to 100 degrees Centigrade. One calorie is equivalent to 3.968 B.t.u.

OXIDATION OF LUBRICATING OIL INDICATES VALUE

Is there any test which may be used to indicate how an oil will stand up in service? Is there any physical or chemical test that would be reliable for this purpose, such as a measure of the acids or light vapors formed on heating?—H.H.T.

There may be both organic and mineral acids formed when some lubricating oils are heated in the presence of air. The ordinary titration methods might be used for determining the total acidity and it is possible to determine the character of the acids; however, the quantity of acid formed when the oil is oxidized is so small that it appears a determination of this kind would be of little value for indicating the degree of stability. We are of the opinion that a measure of the light vapors would give no reliable information on the subject.

The oxidation test has been used for estimating the length and kind of service that may be expected from a given oil. This test was developed by Dr. T. S. Sligh, Jr., at the Bureau of Standards for the purpose of rating oils according to their tendency towards oxidation. The more resistant oils would be expected to give better service in a given lubricating system than would the less resistant oils.

The test consists in placing a 10 gm sample of oil in a closed vessel containing oxygen at atmospheric pressure and keeping the temperature of this vessel at 200 degrees Centigrade (392 degrees Fahrenheit) for two and one-half hours. The oxidized sample is then diluted to a volume of 100 Centigrade with light petroleum naphtha and the precipitate so produced weighed. The weight of the precipitate expressed as a percentage of the weight of oil used and multiplied by 100 is taken as the oxidation number of the oil.

Thus, if a 10 gm sample of oil yields 50 milligrams of precipitate the oil is designated as having an oxidation number of 50. Lower oxidation numbers indicate greater resistance to oxidation.

The oxidation flasks are made of pyrex glass to resist the rapid temperature changes involved in heating and cooling the sample. They may be secured complete with ground glass stoppers and convection plugs from dealers in laboratory glassware.

Oxygen of commercial purity (99 per cent) as ordinarily supplied in steel cylinders, provided the oxidizing atmosphere.

This oxygen is blown into the flask under atmospheric conditions.

The naphtha should be free unsaturated and cyclic compounds as these are good solvents for asphaltenes. The distillation range of the naphtha also has some effect upon the precipitation and it is desirable that the initial boiling point should be between 27 degrees Centigrade (80 degrees Fahrenheit) and 65 degrees Centigrade (150 degrees Fahrenheit) with an end point not above 120 degrees Centigrade (250 degrees Fahrenheit.)

The largest percentage of the oils examined have oxidation numbers in the range 31-40 and about 80 per cent have oxidation numbers below 50. It also appears that the oxidation number of an oil is a function neither of its physical characteristics such as viscosity and fire point nor of the crude from which the oil was produced. The method of refining and especially the extent to which unstable compounds have been removed seem to be the controlling factors in resistance to oxidation.

It may be stated that the oxidation test indicates the resistance of mineral oils to oxidation and that oils of low oxidation number are desirable for service in which the stability of the oil is an important factor in the service performance.

GRADUATED CYLINDER AND OTHER TESTS FOR SEDIMENT AND WATER IN CRUDE OIL

Is the A. S. T. M. method for b.s. and water generally employed in checking pipe line deliveries? Is the method where b.s. and water is taken to be the quantity of sediment deposited when 100 cc. of crude is allowed to stand at 120 Fahrenheit for 24 hours employed to any extent? Has either of these any official status among petroleum technologists, other than adoption by the Government, and among pipe line companies? Which is the better method as yielding definite and informative results for checking crude receipts at a refinery?—L. F. H.

The methods which have been developed by the American Society for Testing Materials, are founded on extensive research and are considered to be as accurate and reliable as it is possible to make them with the knowledge that is now available. The fundamental purpose of these methods is for referee work. Many of the A. S. T. M. details and apparatus are neither adapted to everyday control nor to inspection in the field, so there are numerous short cut methods which are in use; among these you will find several modifications of b.s. and water test for checking pipe line deliveries.

The A. S T. M. method is not generally employed, in fact it appears that there is no uniform system applied to the inspection of crude oil. Every producer and purchaser makes his own choice as to the test to be used. The reason for this may be in the fact that the greater part of the oil offered to the purchasing agencies is clean to the extent that no deductions are made. There are vast quantities of crude oil delivered which contain less than half of one per cent b.s., so there is little need for being exceedingly particular about the details of the test employed to obtain such a small percentage.

The method for determining b.s. and water by means of the graduated cylinder, in which 100 cc. of the oil is held at 120 Fahrenheit and the water and sediment measured at the end of 24 hours, is extensively used in the field. It is not so accurate as other methods, but, as has been suggested, extreme accuracy is not required and this method serves very well as a control measure. This method, together with others and including the methods of the A. S. T. M., is recognized by petroleum technologists and pipe line companies.

When time is an important consideration, as under average conditions at a refinery, the centrifugal method with benzol as a solvent, is commonly used for making the sediment test.

DEVELOPMENT OF THE GAS ENGINE

Where and by whom was the first gas engine invented?—O. G. C.

The prototype of the modern internal combustion engine was first conceived in 1678 by Abbe D'Hautefeuille, an eminent mineralogist and chemist of France. He proposed to use the explosive energy of gun powder to drive the piston in the cylinder but it does not appear that any machine was actually built by him or under his direction. In 1680 the Dutch physicist, Huyghens, devised a similar gun powder engine.

In 1791, John Barber, an Englishman, patented an engine in which a mixture of hydrocarbon, gas and air was used for the charge.

A few years later, John Street, also an Englishman, was granted a patent for an engine which he proposed to operate for the use of vapor derived from a liquid fuel and air, which was to be ignited by a flame and exploded in a suitable cylinder.

About the year 1799, Phillip Tebon, a Frenchman, patented an engine designed to use coal gas for fuel.

In 1860, Lenoir, a Frenchman, produced the first practical gas engine, a one horsepower machine of the double-acting type equipped with a cylinder 3 inches in diameter in which the stroke was 5½ inches. The charge was an explosive mixture of gas and air drawn in the cylinder during the first half of the forward stroke and exploded by an electric spark. This engine worked so satisfactorily that it was built in sizes up to 12 horsepower but later many defects developed, one of which was the enormous consumption of fuel, amounting to 100 feet of illuminating gas per brake horsepower under the most favorable load.

Between the period of 1861 and 1878 Beau de Roches, N. A. Otto and Eugene Langen all did a considerable development on the internal combustion engine

About the year 1873 Brayton of Philadelphia produced the first successful gas engine built in the United States. It was of the vertical type and consisted of a working cylinder and a separate charging cylinder.

At the Paris Exposition in 1878 Otto exhibited a new engine in which he had practically applied the Rochas cycle of operation. Its most ingenious feature was a slide valve which accomplished a double purpose of admitting the charge to the working cylinder and then igniting it by means of a gas flame which passed from the jet in the valve cover through the valve itself and into the compressor chamber. It worked noiselessly, smoothly and regularly and its thermal efficiency was much higher than the Brayton engine. It established the fact that the four-cycle was the most effective method of overcoming the many difficulties which up to that time had prevented the successful operation of internal combustion engines.

In Dugald-Clerk's engine of about 1880 the separate charging cylinder was introduced permitting a working stroke to take place every revolution. This then would represent the first development of the two-cycle principal.

FULLER'S EARTH GAIN AND LOSS

What is considered to be the normal loss of fuller's earth on filtering and burning?—G. R. L.

After the first burning of clay, which removes natural moisture, fuller's earth may increase in weight from 3 to 6 per cent with each burning up to about the sixth time it is burned, after which there will be no increase in weight. This fact has been observed when the conditions are such as to prevent handling loss.

Under the best conditions, and the use of closed kilns, the combined filtering, burning, and handling loss appears to be approximately 5 per cent for each passage through. This is equivalent to an actual service of 20 times.

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Empire Sales School Proves Success

Company Uses Practical and Correspondence Courses in Training the Sellers of Its Refinery Products

By W. T. Ziegenhain

In 1923, the Empire Refineries, Inc., of Tusla saw the coming need for representatives who would be entirely familiar with the manufacture and use of the many oils made at its plants, and at that time organized the Empire sales school. The shaping of the work was principally done by H. W. Camp, general superintendent of refineries, and his supervision of the school has been continuous since its organization

Because of the large territory covered by the marketing division and the extent of the tank car sales territory, there is a great number of men to whom this training may be given and in addition men are sometimes sent from subsidiary companies to take the work.

Most of the men enrolled in the courses have been employed by the company for some time and come from many different departments, but, if they are given the practical course at the refinery, it is usually with the intention of putting them into active sales work, if they are not already in that branch. It is important to strike a balance in the number of men enrolled and the openings available after completing the course. The cost of training each man is high and unless the man is taking the work to better himself in his old work and returns to it, he must be given work that will allow him to make full use of the training or the expense is not justified. This problem is given close attention by the management.

Object of School

The object of the school is to give junior executives, salesmen and prospective salesmen in the wholesale and retail marketing branches of the refinery organization a working knowledge of the refinery practices in order that they may be able to discuss the methods of processing and to familiarize them with the specifications and methods of testing so they may properly judge the quality of their own and competitive oils. By knowing these things the salesman is able to suggest more uses for his oils and can make a correct choice from the many manufactured at the refinery, in meeting a specific use. It is not the purpose of the school to give the student the psychology of salesmanship, but to deal with the manufacturing and operating problems only, as it is believed that the most effective way to teach salesmanship is to put the salesman actually on the road, equipped with a full knowledge of his products, and let him study his customers and himself, knowing that the sales manager is looking for orders and it is up to him to develop tact and perseverance.

Two Courses

A feature of the school is that it provides two courses, one of which is the practical course and the other the correspondence course. In the practical course a limited number of men are sent to the refinery at Okmulgee, Okla., and then through the Tulsa offices. The correspondence course is extended to a great many more men, but this work is done outside of the regular hours and is handled by correspondence with Mr. Camp's office. The two courses cover the same work and the correspondence course is handled by lectures sent to the student for study, and as each is returned he is given a set of questions to answer. These lectures are divided so that the first one is a general introduction to the course, taking up the development of the oil industry since its beginning in the United States and the second one outlines, in detail, the operation of the Okmulgee refinery, and pays particular attention to the discussion of specifications and methods of testing. The third lecture explains the relation of the various departments in the Tulsa offices and their methods of handling the work with the salesmen. The next one deals with wholesale marketing and discusses the service station and warehouse problems, with which the salesman should be familiar when attempting to sell his products to a jobber. The final lecture contains various sales talks given by sales managers and includes some general instructions to serve as a guide to the salesman in following out what is expected of him.

TRAINING SALESMEN

The Empire Refineries, Inc., has been one of the refining organizations which has pioneered the idea of technically training their salesmen. In 1923 the company established a school for that purpose.

Two courses are included, one a four months' practical course in which the men spend a short time working in each branch of the refinery, the general offices and marketing facilities and the other is a correspondence course which covers the same work.

Sixty men have completed the practical course and 150 have completed the correspondence course. A complete detail of the work offered by the school is given in this article.

Practical Course

The management determines whether the student is to take the practical or the correspondence course. If he is to be given the practical course he is sent to the refinery for three months and during that time spends a definite time in each department of the plant This work gives him a working knowledge of how the crude is first fractionated at the stills into gasoline, kerosene, gas oil, lubricating oil stock and fuel oil.

With this as a starting point in the processing, he is assigned through the different departments in the order of the processing of the oil. He spends from 3 to 10 days in each department, which includes the wax house agitators, pressure stills, compounding plant and loading racks.

These students are given regular jobs as much as possible, but their limited experience will not allow them to cover all of the work, so questions are encouraged. The employes are always willing to answer these questions when they receive the co-operation of the students and before a man is sent to the plant he is given a full understanding that the extent of his practical training will largely depend upon the co-operation given the refinery men. He is also told to wear regular work clothes and to get his hands "into the oil." This method of training has proven successful from the standpoint of the student and the operators and it gives the students a more exact and permanent impression of the refinery operations.

General Office Training

At the end of the three months' training at the plant he is sent to the Tulsa office to become acquainted with the work there, and spends from three to eight days in each of the various departments. These assignments are taken in order. The first one is in the manufacturing department and ties in well with the actual refinery work done previously. Here he learns how the amount of production of these various oils is determined and what factors must be watched to protect the quality of the products without raising the costs out of reason. After the salesman is out on the road, this training gives him confidence that he can make reasonable requests regarding the changing of the specifications on an oil to fit better a customer's need and feels free to discuss quality and weigh the importance of one test and another in meeting competition. It is felt that this training has been lacking in general and many times the oil salesman is placed at a decided disadvantage in presenting his products to the technically trained purchasers.

Sales Department

After this assignment he is transferred to the sales department and there gains

(Continued on Page 184)

Training the Petroleum Engineer

A. I. M. E. Committee Points Out Weakness in Present Educational Methods. Not in Favor of Longer Courses

By W. T. Ziegenhain

Criticism and commendation of the present engineering courses available to those who desire to enter the various engineering branches of the oil industry are contained in the reports of the Committee on Petroleum Engineering Education of the American Institute of Mining and Metallurgical Engineers. The committee, which includes the leading petroleum technologists of the country, studied the problem of petroleum engineering education for several months. The report reviews the work of the several colleges and universities offering courses in petroleum engineering and suggests some changes.

The reports covered the training needed in every phase of the industry but were divided, first, as general and then individual reports were read relative to what would best fit a man for work in each of the production, refining, transportation and the geological divisions of the industry.

Interest in this has been shown by the oil companies themselves and as examples, the training offered by the Doherty companies and by the Skelly Oil Co. were cited. Each of these companies has found it advisable to give the graduate students one to two years of practical work at the plants or in the field, supplementary to their college work. This practice was commended by the representatives of the various schools.

As a review of the reports, H. C. George, president of the Oklahoma School of Mines, first defined a petroleum engineer as "a man who can handle men, money and materials and get efficient results." Any training that strengthens him in doing any of these should be included in the college course. Analyzing the needs further he outlined the subjects various schools are now including in their respective courses and then stated the things for which the engineers of the average oil company are responsible.

L. C. Uren, of the University of California, presented the report covering the training needed for production engineering. He showed the percentage of the total time allotted to the various subjects in the petroleum production engineering curricula at the various institutions and the average for each subject The accompanying table summarizes this report.

ENGINEERING COURSES AT UNIVERSITIES

Table showing percentage of total time allotted to various subjects in petroleum engineering curricula at various institutions, and the average for each subject.

Subject—	Univer. of California	Stanford Univer.	Colo. School of Mines	Univer. of Okla.	Univer. of Pittsb'gh	Missouri School of Mines	Averages
Mathematics	8.2	5.3	10.7	12.6	11.6	11.4	10.0
Physics	8.2	2.8	6.3	6.6	8.7	7.6	6.7
Chemistry	15.0	4.2	13.3	5.3	21.0	17.7	12.7
Geological sciences	21.1	12.3	9.4	15.1	14.5	12.0	14.1
Drawing	3.4	8.4	6.3	4.0	1.5	3.8	4.6
General engineering	14.3	10.5	15.7	18.4	2.9	13.6	13.4
Mechanical engineering	4.1	8.1	5.0	13.8	....	5.1	6.0
Civil engineering	....	....	1.3	....	....	3.3	0.7
Mining and metallurgy	5.4	3.5	1.2	2.0	....	0.6	2.1
Petroleum engineering	6.1	7.4	12.6	8.5	27.5	7.6	11.6
Military science and physical education	5.4	....	3.8	2.6	2.9	5.1	3.3
Economics, business law and political science	1.4	10.5	1.9	7.2	5.1	3.8	5.0
English, foreign language, history and public speaking	....	10.8	5.7	4.0	4.3	7.6	5.4
Thesis	2.7	1.8	....	....	....	1.9	1.1
Electives	4.7	14.4	7.0	....	....	....	4.8
Total per cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total units required to graduate*	147	190	159	152	138	158	†151
Duration of course (years)	4	6	4	4	4	4	....

*The unit is one hour of lecture or three hours of laboratory work per week for one semester.

†Average of four-year curricula.

Differences in the time allotted to the subjects by the various schools are not great. This is due to the experiences exchanged during the development of the courses, and now, any change that would benefit one school might be applied to others. This has prompted the discussion of longer school terms and the advisability of five and six-year engineering courses. From the standpoint of the high degree of specialization needed in all branches of engineering, much can be said in favor of longer training for the petroleum engineer for he is expected to be fa-

(Continued on Page 186)

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Iron body globe valve, with union bonnet and renewable seat. Easily accessible for regrinding. Angle pattern is No. 352½, horizontal check valve is No. 366½, angle check valve is No. 367½. See Catalogue 51, page 123.

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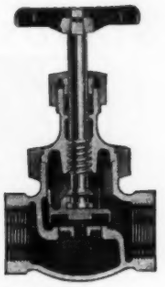
Iron body solid wedge gate valve. Outside screw and yoke. Widely used in oil and gas service lines. See Catalogue 51, page 151.



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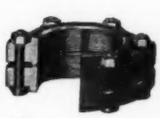

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PANHANDLE FIRST REPORTS

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Gray County

Edwards and others' No. 1 E. J. Case, 330 feet south and west of NE cor. of Section 182, Block B 2, H. & G. N. Survey. Wilcox-Pampa Oil Co.'s No. 27 Worley & Reynolds, 990 feet north and west of SE cor. Section 62, Block 3, I. & G. N. Survey.

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NORTH CENTRAL AND WEST TEXAS

Archer County

L. T. Burns' No. 8 J. H. Turbeville-E, 450 feet north and east of SW cor. of his 72-acre lease "E" out of Section 124, Club Ranch Subdivision; No. 9, 450 feet north and 1,050 feet east of SW cor. of the same 72-acre lease "E." L. T. Burns and others' No. 1 J. H. Turbeville-F, 150 feet north and east of SW cor. of south 60 acres of east 80 acres of west 160 acres of north 320 acres of J. H. Turbeville's 680-acre tract out of Section 124, Club Ranch Subdivision. Continental Oil Co. and Perkins & Cullum's No. 1 L. F. Wilson, 490 feet north and 150 feet east of SW cor. SW SE, Lot 14, Section 114, A. T. N. C. L. Survey. Marland Oil Co. and J. Razor's No. 1 T. B. Wilson, 150 feet north and east of SW cor. of the E half of NE, Section 8, Block 3, H. & T. C. Survey A-1,247. Petroleum Producers Co.'s No. 6 J. H. Turbeville-C, 450 feet south and 150 feet east of NW cor. of their 20-acre lease "C" out of R. Carson Survey No. 142. Plains Producing Co.'s No. 5 Belle Z. Lyles, 150 feet north and 450 feet west of SE cor. SE SE, Section 2, S. P. R. R. Survey, A-1,231. Royal Petroleum Co.'s No. 3 L. F. Wilson, 160 feet south and 150 feet east of NW cor. Section 1, S. P. R. R. Survey, A-412, and located in D. L. & C. Survey, A-1,093. Shappell Oil Co.'s No. 1 Annie D. Barton, 2,305 feet north and 1,470 feet east of SW cor. of A. D. Barton's 605-acre tract and located in Section 14, McKinney & Williams Survey, A-306. United Production and Petroleum Producers Co.'s No. 3 J. H. Turbeville-B, 150 feet north and 450 feet west of SE cor. of their 40-acre lease out of Section 124, Club Ranch Subdivision. C. L. Abercrombie and Roxana Petroleum Corp.'s No. 1 J. W. Jones, 150 feet north and east of SW cor. of Section 96, same subdivision. Kirk Oil Co.'s No. 1 W. R. Farmer, 180 feet north and 150 feet west of NW cor. Richard Chisholm Survey, A-71, and located in Bell County School Land Survey, A-12. Roberts Oil Corp. and Hunt & Seigler's No. 1 J. S. Walsh, 450 feet south and 415 feet east of NW cor. of north 80 acres of south 106 acres of the W half of Section 2,416, T. E. & L. Survey. Tidal Oil Co.'s No. 3 L. H. Farmer, 805 feet north and 810 feet east of SW cor. of W. C. Winters Survey, A-663. Western Oil Corp.'s No. 2 H. O. Prideaux, 150 feet north and 450 feet east of SW cor. of A. McMullen Survey, A-266.

Corrected Location

Craig & Wilson's No. 2 T. J. Longley Estate, 1,235 feet south and 1,445 feet west of NE cor. of J. B. Hinds Survey, A-184.

Brown County

Harry Davis' No. 1 W. E. Flowers, 1,050 feet south and 300 feet west of NE cor. of W. E. Flowers' 115-acre tract out of R. M. Ferguson Survey, No. 329. Haskell and others' No. 1 T. J. Smith, 2,050 feet south and 450 feet east of NW cor. of T. J. Smith's 78-acre tract out of Mrs. J. Ude Survey, No. 16. McKenna and others' No. 3 J. W. Shore, 100 feet south and 150 feet east of NW cor. of their 70-acre lease out of Charles S. Betts Survey, No. 625; No. 5, 585 feet south and 150 feet west of NE cor. of their same 70-acre lease; No. 6, 315 feet south and 450 feet west of NE cor. of their same 70-acre lease; No. 7, 400 feet south and 150 feet east of NW cor. of their same 70-acre lease. Orange Oil Co.'s No. 1 N. A. Perry, 150 feet south and west of NE cor. of N. A. Perry's 160-acre tract out of J. Van Winkle Survey, No. 64. O. H. Shoup, Jr.'s, No. 7 J. Byler, 1,445 feet north and 1,940 feet east of SW cor. of I. & N. O. Survey, No. 43; No. 17, 470 feet north and 1,285 feet east of SW cor. of the same survey. The Texas Company's No. 1 J. Byler, 150 feet north and east of SW cor. of north 14 acres of south 100 acres of Hamp Byler's 260-acre tract out of the same survey; No. 41 Mrs. R. M. Lowe, 150 feet north and 1,050 feet east of SW cor. of their 320-acre lease out of George Stubblefield Survey, No. 622; No. 42, 750 feet north and 150 feet east of SW cor. of their same 320-acre lease. Wentz Oil Corp.'s No. 13 J. W. Shore, 545 feet south and 150 feet west of NE cor. of west 240 acres of J. W. Shore's 320-acre tract out of Charles S. Betts Survey, No. 625; No. 14, 1,110 feet east and 150 feet west of NE cor. of west 240 acres of J. W. Shore's same 320-acre tract. Nelson and others' No. 1 E. S. Beyson, 150 feet north and 750 feet east of SW cor. of E. T. R. R. Survey, No. 7. Ryan and others' No. 2 R. L. Brooks, 150 feet north and west of SE cor. of NW 40 acres of R. L. Brook's 330-acre tract out of Julian Hernandy Survey, No. 330.

Corrected Location

Senior Petroleum Co.'s No. 1 Mrs. Williams, 745 feet south and 985 feet east of NW cor. of Section 4, E. T. R. R. Survey.

Callahan County

Hill & West's No. 1 J. S. Waller, 1,070 feet north and 150 feet east of SW cor. of J. S. Waller's tract out of Section 82, Comal County School Land Survey. Star & Kiser's No. 1 J. Y. Gilliland, 160 feet north and east of SW cor. NE NW, Section 124, B. B. B. & C. Survey. The Texas Company's No. 14 George H. Clifford, 150 feet north and east of SW cor. SE, Section 3,152, T. E. & L. Survey.

Corrected Locations

Shaw and others' No. 2 J. A. Miller, 1,115 feet north and 150 feet east of SW cor. of Section 98, Comal County School Land Survey; No. 3, 1,715 feet north and 150 feet east of SW cor. of the same section.

Clay County

Empire Holding Corp.'s No. 3 J. Barry, Jr., 1,885 feet north and 1,735 feet west of SE cor. of Section 2,642, T. E. & L. Survey, being 150 feet south and east of NW cor. of Lot 15.

Coleman County

Marland and Pennok Oil Co. and others' No. 1 William Lobstein, 300 feet north and 600 feet west of the most southerly SE cor. of William Lobstein's 58-acre tract out of Conrad Motch Survey, No. 43. T. B. Slick's No. 1 Mrs. Ruth Goodwin, 1,650 feet south and 1,050 feet east of NW cor. of Mrs. Ruth Goodwin's 365-acre tract out of W. T. Dunlavy Survey, No. 259. Eli Evans and others' No. 1 Mrs. R. M. Lowe, 1,320 feet south and 1,560 feet east of NW cor. of Mrs. R. M. Lowe's 450-acre tract out of J. A. Wright Survey, No. 747. Hodge & Baker's No. 1 E. S. Fiveash, 150 feet south and 750 feet east of NW cor. of E. S. Fiveash's 160-acre tract out of Bonds and Sanders Survey, No. 78. A. S. Mimms and others' No. 1 Kelly & Grady, 1,185 feet north and 150 feet west of SE cor. of Kelly & Grady's 367-acre tract out of Lot 7, Wharton County School Land Survey, No. 496.

Corrected Locations

Hoffer Oil Corp.'s No. 1 Mrs. F. B. Cameron, 1,400 feet north and 2,000 feet west of SE cor. of Mrs. F. B. Cameron's

HOPE Service

It is responsibility you seek, in those to whom your millions are to be entrusted, in a construction enterprise? Check back over the record of the Hope Engineering and Construction Staff. Find, if you can, one record of failure to deliver complete satisfaction. Then, let your own judgment decide. Place responsibility with those who have shown you their ever-readiness and their proved ability, to assume it.

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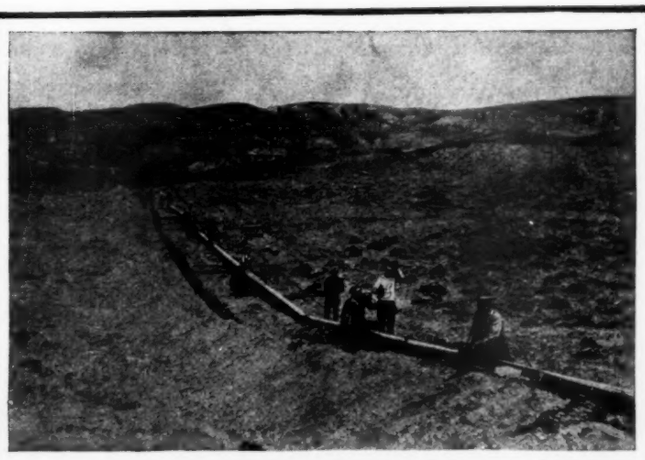

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Save money with Greenspon's pipe—prices run 1/3 to 1/2 lower. You get guaranteed pipe, every length of which has been thoroughly inspected, equipped with new threads and fitted with new couplings. You will get years of service from it. Greenspon's casing, and ODEE pipe for gas lines, are likewise guaranteed! Ready at our yards in sizes to suit your needs, for immediate shipment.

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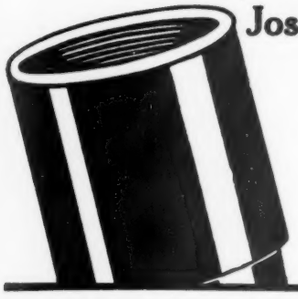

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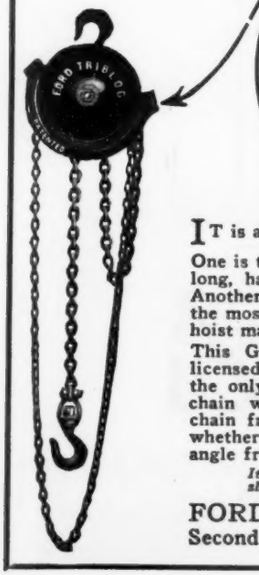
Costs more to make costs less to use!

This hand chain Guide is always painted GREEN



IT is always painted GREEN for two reasons.

One is that it identifies a chain hoist unequaled for long, hard service on almost any sort of a job. Another reason is that it indicates what is probably the most important protective feature of any chain hoist made—the LOOP HAND CHAIN GUIDE.

This Guide, owned and used by ourselves and licensed for use on but few other chain hoists, is the only Guide that absolutely controls the hand chain while in motion. It prevents the hand chain from buckling or "gagging" in the guide—whether operated at the point of hoisting or at an angle from the hoist.

It has many other advantages about which we should like to tell you. Send for Catalog 7-B.

FORD CHAIN BLOCK COMPANY

Second and Diamond Sts., Philadelphia, Pa.

105-acre tract out of J. A. H. Cleveland Survey, No. 495. Monroe Production Co.'s No. 1 Mrs G. S. Caton, 2,960 feet south and 1,570 feet east of NW cor. of Mrs. G. S. Caton's tract out of Wharton County School Land Survey, No. 496. Senior Petroleum Co.'s No. 1 J .S. Laughlin, 630 feet south and west of SE cor. of A. S. Lipscomb Survey No. 80, and located in Stewart Perry Survey No. 194.

Cooke County

Big Indian Oil & Development Co 's No. 1 Charles Clerr, 150 feet north and 515 feet west of the most southerly SE cor. of east 40 acres of south 75 acres of Charles Clerr's 175-acre tract out of Section 23, George Ivy Survey, A-516. Shasta Oil Co.'s No. 1 Eva C. Hair, 825 feet north and 4,900 feet west of SE cor. of J. Gregg Survey, A-397, being at center of south 40 acres of west 100 acres of H. C. Hair's 220-acre tract. L. Thornton and others' No. 1 O. L. Spence, 150 feet south and east of NW cor. of east 40 acres of O. L. Spence's 85-acre tract out of T. Toby Survey, A-1,050.

Corrected Locations

American Oil & Refining Co.'s No. 1 J. F. Frasier, 450 feet north and 300 feet east of SW cor. of Lot 6, J. F. Frasier's 200-acre tract out of Ambrose Hilburn Survey, A-441. McElreath & Suggett's No. 1 Joe Fischer (formerly McElreath & Suggett and Prairie Oil & Gas Co.'s No. 1 Joe Fischer), 150 feet north and west of SE cor. of the N half of Joe Fischer's 200-acre tract out of Lot 18 J. Barnett Survey, A-42.

Crane County

Church-Weekly's No. 2 University Land, 330 feet north and east of SW cor. of the E half of SW Section 29, Block 30, University Land. Humble Oil & Refining Co.'s No 9 University Land, 990 feet north and east of SW cor. of Section 58, Block 30, same land.

Comanche County

Hickery and others' No. 1 J. Maxwell, 1,500 feet north and 6,250 feet east of SW cor. of William Shipp Survey, being 150 feet north and west of SE cor. of J. Maxwell's 167-acre tract. (Corrected location.)

Eastland County

J. A. Bearman and others' No. 1 N. N. Rosenquest, 150 feet south and east of the most northerly NW cor. of N. N. Rosenquest's 555-acre tract out of Section 3, Block 6, E. T R. R. Survey. Ed V. Parsons' No. 1 D. C. Woods Estate, 1,795 feet south and 2,030 feet east of NW cor. of W. Graham Survey. States Oil Corp.'s No. 1 Minnie Sibley, 180 feet south and 210 feet west of NE cor. of Lot 19, William Van Nowman Survey. Empire Gas & Fuel Co.'s No. 2 J. A. Bishop, 300 feet south and west of NE cor of the W half of SW, Section 46, Lavaca County School Land Survey. Independent Oil & Gas Co.'s No 3 W. M. Morgan, 300 feet south and east of NW cor. of the E half of SW, same section.

Grayson County

Camp Oil & Gas and McCarty Oil Co.'s No. 1 J. A. O'Dell, 150 feet south and 1,930 feet east of NW cor. of T. R. Shannon Survey, A-1,081, being 150 feet south and east of the most northerly NW cor. of J. A. O'Dell's 70-acre tract.

Hardeman County

Murchison Oil Co.'s No. 1 D. B. Mayfield, center of NE Section 15, Block H. W. & N. W. R. R. Survey.

Howard County

Godley Oil Co.'s No. 1 A. J. Hooks, 1,520 feet south and 200 feet east of NW cor. of Section 140, Block 29, W. & N. W. Survey. Lockhart & Carey's No. 3 Otis Chalk-A, 1,320 feet north and 1,445 feet east of SW cor. of Section 95, Block 29, same survey.

Magnolia Petroleum Co.'s No. 7 Otis Chalk, 330 feet south and west of NE cor. SW, Section 114, Block 29, same survey; No. 2 Sloan Chalk, 330 feet north and west of SE cor. NW, same section.

Hudspeth County

Lockhart Brothers' No. 1 Gardner & Moseley, center of SE Section 5, Block 21, Public School Land

Jack County

Empire Holdings Corp.'s No. 1 Mrs. M. D. Snedeker-B, 150 feet south and west of NE cor. of east 20 acres of Lot 9, J. Robbins Survey, A-490.

Jones County

Corrected locations: Grisham, Hunter & Wildman's No. 1 Hrs. Mrs. F. G. Phillips (formerly No. 1 George B. Bichfield), 3,810 feet north and 7,535 feet east of SW cor. of Harrison County School Land, No. 333. World Oil Co.'s No. 1 L. B. C. Boyd (formerly No. 1 W. H. Lee), 12,700 feet north and 2,130 feet east of SW cor. of Samuel Jones Survey, No. 266, A-244.

Mitchell County

California company's No. 2 Swenson, 330 feet south and west of NE cor. of Section 15, Block 26, Township 1n, T. & P. Survey.

Montague County

Cato Oil Co.'s No. 13 C. L. Rolls Estate, 1,830 feet north and 200 feet west of SE cor. of C. L. Rolls' 100-acre tract out of J. Chambliss Survey, A-123; No. 14, 150 feet south and west of NE cor. of same 100-acre tract. Fleming & Kimball's No. 1 J. W. Maddox, 1,750 feet north and 2,050 feet west of SE cor. of J. W. Maddox's 334-acre tract out of J. Chambliss Survey, A-123, being 150 feet south and 750 feet east of NW cor. of their 10-acre lease. E L. Smith Oil Co.'s No. 7 J. W. Maddox, 450 feet south and 150 feet east of NW cor. of C. W. Thompson Survey, A-741. Superior Oil Producing Co.'s No. 1 W. D. Easley, 210 feet south and 750 feet west of the most easterly NE cor. of W. D. Easley's 170-acre tract out of Section 18, Block 4, H. & T. C. Survey, A-112.

Palo Pinto County

Orbit Drilling Co.'s No. 1 R. N. Morgan, 225 feet south and west of NE cor. NE Section 76, Block 1, T. & P. Survey. T. G. Shaw's No. 1 Mrs. Tina Jones, 1,000 feet south and 150 feet west of NE cor. of SW Section 39, Block A, same survey. Chestnut & Smith Corp.'s No. 1 Ann Hart, 300 feet south and west of NE cor of the W half SW Section 36, Block 4, same survey. Roth & Faurot's No. 1 C. C. Williams, 300 feet north and west of SE cor. of Section 50, Block 2, T. & P. Survey.

Pecos County

George A. Henshaw, Jr.'s No. 1 I. G. Yates, 330 feet south and 1,650 feet east of NW cor. of Section 544, H. & G. N. Survey, A-3,829.

Shackelford County

Cleason and others' No 1 L. B. McCough, 750 feet north of the south line and 400 feet SW of the NE line of Section 4, Block 10, E. T. R. R. Survey. Ramsey-Maxey Oil Co.'s No. 1 E. A. Jeter, 150 feet north and west of SE cor. of the N half of Section 15, Block 11, T. & P. Survey. Tannehill Oil Co.'s No. 6 J. B. Matthews, 750 feet north and 150 feet east of SW cor. SW Section 58, Block 10, E. T R. R. Survey.

Stephens County

Hickok Production Co.'s No. 1 M. M. Hemil, 850 feet south and 500 feet west of NE cor. NW Section 5, Lunatic Asylum land. Conway Brothers' No. 1 A. B. Gardenshire, 150 feet north and east of SW cor. of north 60 acres SW Section 49, Block 6, T. & P. Survey. Texas Pacific Coal & Oil Co.'s No. 70 Charles Binney, 3,330 feet north and 1,150 feet west of SE cor. of Section 53, Block 4, T. & P. Survey.

Tom Green County

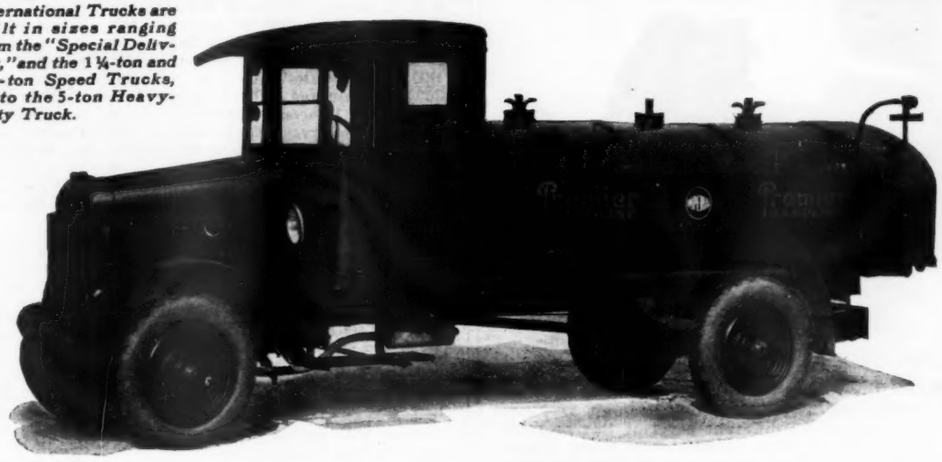
Corrected location: Marland Oil Co.'s No. 1 Llano County School Land, 3,500 feet south and 13,000 feet west of NE cor. Llano County School Land Survey, No. 946.

Upton County

Texas Pacific Coal & Oil Co.'s No. 9 J. T. Love-A, 2,310 feet north and 990 feet east of SW cor. of Section 5, G. C. & S. F. Survey, A-213. The Texas Company's No. 23 Richard King, 2,310 feet south and 330 feet west of NE cor of Section 11, Block 3½, C. C. S. D. & R. G. N. G. Survey.

Corrected locations: Independent Oil & Gas Co.'s No. 94 L. Taylor, 330 feet north and 330 feet west of SE cor. of S. T. Sapp Survey, No 6. The Texas Company's No. 22 Richard King, 2,310 feet north and 330 feet west of SE cor.

International Trucks are built in sizes ranging from the "Special Delivery," and the 1¼-ton and 1½-ton Speed Trucks, up to the 5-ton Heavy-Duty Truck.



Again, Imperial Oil comes to International

—*this time for 21 Model 33's*

WHEN the expanding business of Imperial Oil, Ltd., made additional trucks a necessity in the Maritime and western provinces, recently, this firm again demonstrated its faith in International Harvester Trucks and Service. Twenty-one Model 33's (one shown above) will soon be at work extending Imperial's reputation for certain service.

Imperial Oil's experience with International Harvester Trucks, is typical of the experience of many other important oil companies on this continent—producing, refining, and distributing.

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In this field and in other fields—and also in the refining and distributing end of the business—thousands of Internationals are doing the hard work for the most progressive companies of the industry. Everywhere International Trucks are giving good service and getting good service as well.

Hard service is built into every International by one of the oldest manufacturing organizations on the continent. Good service is given to Internationals through *125 Company-owned branches in the United States.*

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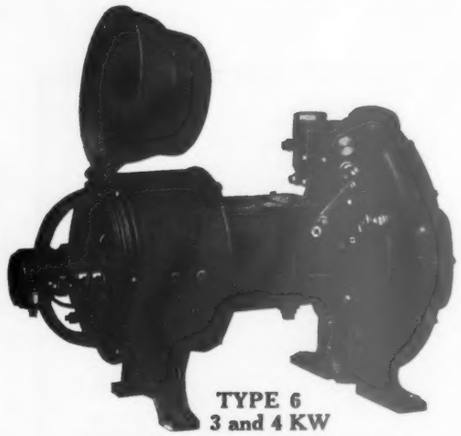
INTERNATIONAL HARVESTER COMPANY TRUCKS

ACCESSIBILITY



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Accessibility was one of the foremost features kept in mind when the Type 6 MOON Turbo Generator was designed.

Notice how easy it is to get at the different parts of this machine for inspection and oiling. The brushes, commutator, oiling places, governor, governor valve are all where you can get at them instantly.

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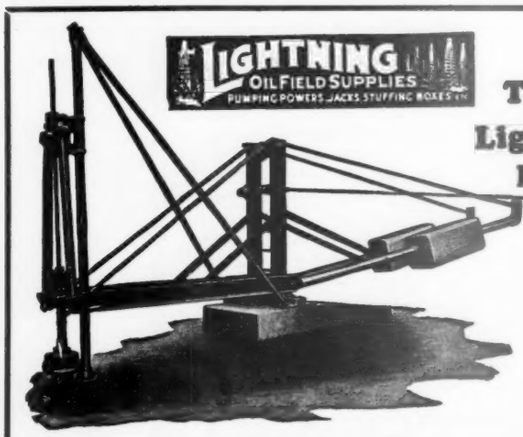

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Low, small foundation is all that is required

Cannot Twist Out of Line

Built on safe and sane principles. Rocks back and forth on solid block that cannot twist or warp. Few bearings. All easily renewable and oiled by large waste boxes for continuous operation. Double counter weights, heavy enough to balance perfectly the sucker rod line. Adjustable weights maintain perfect balance. Long straight stroke without use of levers and complication. Cost of installation lowest of any jack of its class. Operates under heaviest loads with smooth steady stroke. No grunts, groans or weaving.

Manufacturers of
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Section 11, Block 3½, C. C. S. D. & R. G. N. G. Survey.

Wichita County

Continental Oil Co.'s No. 2 J. L. & T. J. Waggoner-C, 160 feet north and 150 feet west of SE cor. Lot 27, Hezekiah George Survey, A-454. Continental Oil Co. & Perkins & Cullum's No. 1 G. B. Ancell, 500 feet south and 550 feet east of NW cor. NW Section 10, Block 7, H. & T. C. Survey. Cooper & McLaughlin's No. 6 M. A. Love, 200 feet north and 160 feet west of SE cor of north 25 acres of Lot 11, W. S. Kennard Survey, A-171. O'Donoho & Gates' No. 2 M. A. Love, 365 feet south and 150 feet east of NW cor. of west 10 acres of south 25 acres of Lot 11, same survey; No. 1 "Shallow" M. A. Love, 150 feet north and west of SE cor. of west 10 acres of south 25 acres of Lot 11, same survey. Harry Hines' No. 5 State Land, 880 feet north and 1,650 feet west of SE cor. of Lot 6, W. H. Spillers Survey, A-257, and located in the bed of the Big Wichita River; No. 6, 1,400 feet north and 605 feet west of SE cor. of Lot 6, same survey, and located in the same river bed Panhandle Refining Co.'s No. 10 E. Riley-Griffin, 1,805 feet north and 560 feet west of SE cor. of Lot 6, same survey and located in Mrs. Floyd Jordan Survey, A-167. C. P. Sheldon and others' No. 5 C Franklin and others-A, 150 feet south and 100 feet east of NW cor. of Section 328, Waggoner Colony Lands.

Wilbarger County

Continental Oil Co. and J. S. Cosden's No. 2 W. T. Waggoner, 1,200 feet south and 150 feet west of NE cor. NW Section 57, Block 4, H & T. C. Survey; No. 3, 300 feet south and 150 feet west of NE cor. of NW same section. Fain-McGaha Oil Corp. and others' No. 10 F. Fluhman, 480 feet north and 150 feet east of NW cor. G. P. Co.'s 40-acre lease No. 10,985 and located in W. A. McKinney Survey, A-998.

Young County

P. F. Gwynn and others' No. 1 G. W. Christian, 150 feet north and east of SW cor Section 1,593, T. E. & L. Survey. Riggs and others' No. 4 J. W. Jones, 1,350 feet south and 150 feet west of NE cor. of J. W. Jones tract out of S. Sallie Survey, A-252. Stafford & Haynes' No. 1 Mrs. E. Dyer, 150 feet south and west of NE cor. of south 40 acres of Mrs. E. Dyer's 75-acre tract out of L. E. Hardin Survey, A-1,582. Winemiller Oil Co.'s No. 1 R. H. Miller, 2,270 feet north and 1,450 feet east of SW cor. Lot 9, R. H. Miller Subdivision, A. Rohus Survey, A-240; No. 1 R. H. Miller-B, 885 feet north and 150 feet east of SW cor. of Lot 1, same subdivision, and out of the same survey.

Corrected location: Henry Dyer and others' No. 1 A. M. Graham estate, 1,200 feet north and 2,790 feet west of SE cor. Paul Pier Survey, A-217, being 150 feet SE of NW line and 150 feet west of the east line of their 16-acre lease.

EMPIRE SALES SCHOOL PROVES SUCCESSFUL

(Continued from Page 178)

another viewpoint, that of the customer. He is allowed to become acquainted with the general routing of the order during the time it is approved, priced, recorded and sent to the traffic department for routing and booking. He is also given an opportunity to read enough of the correspondence to become acquainted with the method and general sales policy of the company. In many cases the future work of the student has been planned and in that case he is given more of the sales training along the lines he is to follow. If he is to specialize in the sale of certain products or is to cover a definite territory he is acquainted with the correspondence on these subjects and is able to benefit from the information coming from many sources.

Extending Credit

His next training is in the accounting department and there he becomes acquainted with another viewpoint—that of a rather independent department away from the operating problems, the credit department. The credit manager is responsible for the extension of credit and the collections but gives a service to the customer as well, for he protects the credit by limiting the extension of credit. Many times this latter fact is not appreciated and the customer is led to buy over his needs, prompted by sales talk of a rising market rather than through an analysis of the market. Such a purchase is little short of a gamble and the extent of the customer's ability to do this is left to be judged by the credit manager if credit is asked for and in such cases the extension of credit may work a hardship on the customer and company as well. The fallacy of making this type of sale is fully covered while the student is in this department and to complete his work here he is acquainted with the method of invoicing, accounting and the follow-up on late payments.

Traffic Problem

His next assignment is in the traffic department. The importance of this branch of the routine of taking the crude oil from the ground and delivering its refined products to the consumer is often underestimated or not understood by the salesman because of the ramifications in the work. Many times a fraction of a cent per gallon can be saved in a freight equalization that is equal to the entire manufacturing margin. The first training in the traffic department is to follow the routing of the order as it passes through the traffic department after coming from the sales department. The student sees how the formal order is made out and what factors are considered in routing the car to the customer.

He also learns the limitations in getting out an order which demands unusual attention and is cautioned not to offer unreasonable promises of quick delivery without taking this up with the Tulsa office, as the orders are booked and shipped in the order received. The student is made familiar with the types of tank cars in service, the mechanical features of the car that may cause trouble to the customer, and he is shown how properly to open a car and gauge it. This department is also responsible for the investigation of complaints and for the settlement of claims, and the student is shown how these are handled. He is also told how rate changes are effected and in what way he will be expected to co-operate with the traffic department when these changes are under investigation in his territory.

This work covers the more important phases of the relation of a salesman to the refining offices and the balance of the office training is in the marketing brach. Here he becomes acquainted with the method of operating the service stations and warehouses. He is shown how the sales of one territory are compared with that of another and how the many factors are analyzed in planning expansions. But the greater share of the time in the marketing division is spent at the warehouse and service stations.

While there he is expected to learn some of the operating problems and get the jobber's viewpoint. This is helpful to the salesman, as he can appreciate the jobber's views and when selling to him can better understand his needs. In the warehouse he is able to gain some idea of the amount of stocks to be carried in doing a certain volume of business and by developing this he is able to go into a jobber's warehouse and gain his confidence to the point that he is able to suggest the purchase of certain oils to replace the depleted stocks without overstocking the purchaser.

All of this training is covered in such a short period that it is difficult to give the student more than an idea of the work, but has been so well planned that the salesman gains a complete working knowledge of the operation that he could not get in any other way, and as he goes out on his territory he feels confidence in himself and is best able to serve the customers and the company.

Sixty men have completed the practical course and more than 150 have taken the same training by correspond-

PITTSBURGH SEAMLESS

Larger Casing Sizes

OUR new Mannesman-Pilger Mill which went into production a few months ago carries the superior "Pittsburgh Seamless" standards into seamless steel casing in sizes up to 12½ inches in diameter. The greater strength both in the joints and in resistance to collapse of this casing means greatly increased economy and production.

Pittsburgh Seamless Steel Casing, Tubing and Drill Pipe are made by piercing solid ingots and billets of best basic open hearth steel. The severity of this process proves the soundness of every foot of the finished product, and produces tubing of exceptional texture and uniformity.

Pipe Storage Yard at Memphis

Our large pipe storage yard at Memphis and warehouse stocks at other convenient points enable us to give efficient service to the Mid-Continent, Gulf Coast and California fields. Your inquiries will be appreciated and receive prompt attention.

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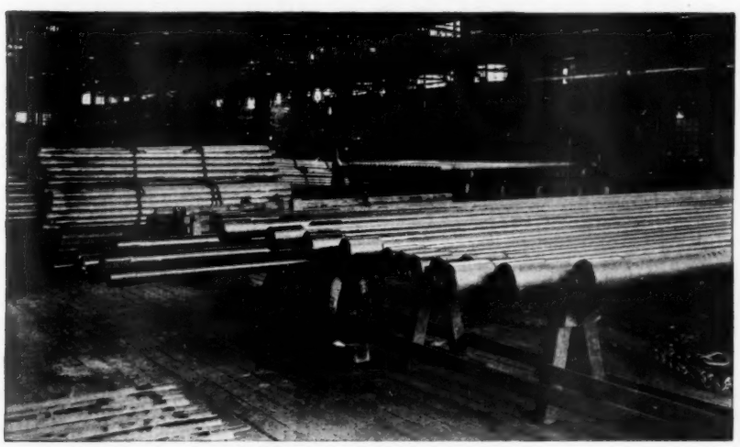

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Stanley Has a Pull!

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Economy—

O'Brien Steel Derricks are not cheap, *but they are economical.* The *cheapest equipment,* generally, *turns out* to be *the most expensive* in the long run. The purchase of *an O'Brien* Steel Derrick *represents an investment in indefinite use* and practical indestructibility. There is no rotting, warping or breaking of defective timbers. The cost of removal and re-erection on a new location is generally less than the cost of new wood required to replace breakage in a wooden outfit. Some of our derricks have already drilled 25 wells and are still in good working condition.

Why Experiment? O'Brien Derricks will drill your wells and pull your casing.

O'BRIEN STEEL CONSTRUCTION COMPANY, INC.

Washington, Pennsylvania

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RIG EQUIPMENT COMPANY, 1524 So. St. Louis St., Tulsa, Okla.

ence. The results have been so encouraging that the school is now considered a permanent part of the Empire organization.

TRAINING OF THE PETROLEUM ENGINEER

(Continued from Page 178)

military with the problems of production, refining, transportation and marketing, any one of which may be enlarged upon.

In addition to the apparent lack of sufficient training along engineering lines to satisfy all of the needs, criticism of the engineering courses, as they are now outlined, is that they should have a broader cultural background. Then, in contrast to this academic viewpoint, it is said that many practical engineers believe that any additional time spent in the training may be more profitably applied in the field. It is also the experience of schools that have established longer courses, that the number of graduating students diminished rapidly. The advisability of the extension of the engineering training is not answered but is left to the industry to say, for when the industry reaches a point in its development where a greater number of years of academic work is desirable the greater remuneration it may offer the engineer will justify it, but until then, the institutions that are pioneering the extension must contend with the tendency of their students to gravitate toward the four-year institutions.

Favor Four-Year Course

With this latter fact known, the committee was almost unanimous in favoring the continuation of the four-year course. The type of instructor has been recognized as a big factor in the shaping of the engineering college work and applies particularly to the field and laboratory work. The committee discussed the selection of the personnel from the industries, providing the instructors have the ability to teach which in itself is a profession. It was also recommended that they be allowed and encouraged to maintain their professional contacts with the industry as will best permit them to pass the new developments on to their students.

Field Training Important

There was but little difference in the opinions of the members of the committee regarding the value of field work before or during the academic work and the discussion merely covered the opinions on how much of this work should be given and when. It was agreed that the student who has had actual field experience in the employ of a company always had the advantage over the one who had to rely on books and the laboratory work alone. Appreciative of this, some schools required that one or two vacation periods be spent in the field at work. It was also pointed out that engineers and executives, responsible for the engineering personnel of the companies should realize the obligation that the industry must assume in affording these embryo engineers an opportunity to get into the field and plants during the vacations.

Refining Engineering

Much of the general discussion of the training in production engineering can be applied to refining engineering also, but W. F. Padgett of the University of Oklahoma, chairman of the committee on refinery engineering, included several other points particularly applicable to the betterment of refinery engineering courses. The plant experience to be gained during vacations is of exceptional value to the refinery engineer for that is the most impressive way of showing how the oils are processed into finished products, and because the refining of petroleum oils is so complicated only through actual contact with the processing and equipment could a complete understanding of refining be gained.

Another criticism offered to the present college refinery courses in general is the lack of emphasis on report writing. It was pointed out that the engineer is usually given a problem in the plant to investigate and is left to himself to work it out. He is asked to report on the conditions and offer suggestions to remedy the situation, but many times the engineer is not able to give a complete, concise report to the management in a way that the executives can understand it and as a result his work and suggestions do not receive the attention they deserve.

This leads to the discussion of the needs for a more liberal education for engineers. L. J. Pepperberg, a consulting petroleum engineer, has said. "I find that many competent technical men are not able to express themselves clearly and concisely either in written reports or verbally. Too much emphasis can not be placed on English composition and public speaking. The industry must present its case and the technical men are better trained to present certain phases of the industry. All engineering and technical men should be encouraged to take an active part in civic enterprises. Only in this way will the public become acquainted with the technical man in the industry and be prepared to appreciate him and have confidence in his opinion when he presents the industry's case to them.

Economic Phases

"One of the weakest spots found among executives and technical men is their lack of training in economics. The average executive and engineer has a very poor conception of such terms as 'discount,' 'depreciation' and 'amortization,' and but very few of them are able to analyze a balance sheet and arrive at a proper conclusion. Throughout the education of men who will have to place values on property emphasis should be placed on the economics underlying the particular phases of the business in which they are interested."

These points were fully discussed, and a majority of the committee were in agreement as to the existing conditions and the necessary remedies. None was in favor of eliminating any of the work already given the students and with the courses overcrowded with work and the inadvisability of adopting courses taking more than four years it seems improbable that any great change will be noticed over the immediate future except the slow gradual modifications that may lead to a more liberal training.

Training the Geologist

The training of a third type of engineer, the geological engineer, was also discussed. W. H. Emmons, director of the Minnesota Geological Department and chairman of the committee on geological engineering, summarized his views by saying that the curricula of the schools should be designed to equip these men with the fundamental information so that they can undertake the exploitation of an oil field under general supervision and with sufficient knowledge of the literature, that they may readily obtain all of the information relating to the field. His training should develop in him a sound enthusiasm for the subjects and habits of his profession and should develop accuracy in observation and thought.

GASOLINE CONSUMED; IMPORTS INTO ITALY

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.—Gross imports of gasoline and consumption in Italy are given in a communication from Trade Commissioner J. E. Wholean, at Rome, bring these figures down to the most recently available data.

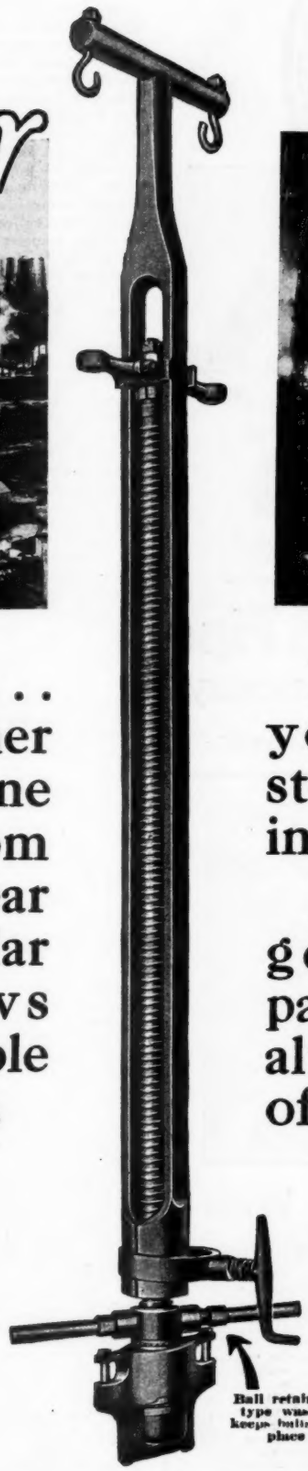
The following shows the Italian gross imports of gasoline and benzine consumed:

	Gasoline Imports Tons	Benzine Consumed Tons
1918	205.789	56.531
1919	141.457	43.439
1920	117.619	48.279
1921	103.421	100.983
1922	114.692	127.913
1923	132.636	147.631
1924	158.070	156.450
1925	189.243	183.941
1926 (11 months)	201.078	219.451

A. F. GILLIAM DIES

A. F. Gilliam of San Antonio, aged 36, prominent as an oil operator in Mexico and a brother of Luke Gilliam, died in San Angelo, Tex., very suddenly.

Day or Night



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Be sure you use genuine Burns parts then you will always be certain of Burns operation.

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This line runs across salt marshes. It demonstrates the high resistance of Cast Iron Pipe to corrosion.

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Suppose you want to intercept fractures through which oil may be seeping up from lower formation. Suppose the formation pitches, or dips, so that vertical drilling will break up the strata as it passes from one to the next?

With the Diamond Drill it is easy, since this machine is designed to drill and take core at any angle of the 360 degrees.

Can you do this with any other machine?

The photograph shows a Sullivan "CN" 1000 ft. mounted, Buda engine powered, hydraulic feed, Diamond Drill boring a hole at 30 degrees from the horizontal not far from Tampico, Mexico. In this work, boring in soft shale, the machine is doing rapid and accurate work, covering a high percentage of core.

Sullivan Mounted Diamond Drills are built in two sizes. "CN" 1000 ft. capacity and "N" 2000 ft., both removing 2-inch core. The Class "N" heavy duty machine has a special automatic chuck permitting the use of a grief stem for fish tailing and utilizing mud fluid when necessary. Send for new Bulletin 1580-B.

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Mexican Shipments Were 100 Per Cent Below March of 1926

By George Blardone

TAMPICO, Mexico, Apr. 23.—Vessel shipments of petroleum from Mexican ports of primary clearance totaled 4,266,553 bbls. for the month of March, a decrease from February of 279,527 bbls. The decrease from the movement in March, 1926, however, was more sharply defined. The decrease from March of last year totaled not less than 4,554,146 bbls., or more than 100 per cent. This is the most acute drop, reckoned from one year to another, that vessel movements of petroleum from Mexican ports of primary clearance has ever experienced.

It might be remarked that the apex of vessel shipments from Mexican ports of primary clearance (at that time Tampico, Port Lobos and Tuxpam—now Port Lobos is no more) occurred in December, 1921, when the shipments from the three ports above mentioned totaled 19,286,072 bbls. That was in what is now popularly recalled as the "golden age." To go back further, last month (March) with its vessel shipments of 4,000,000 bbls., plus, marks exactly one decade for this 4,000,000-bbl. mark. To be more precise, February 1917 saw a vessel movement from Mexican ports of primary clearance of 2,919,489 bbls. The forward movement was on, however, and the next month, March 1917, saw the movement swing to 4,000,000 bbls., plus. The vessel movement went a little below this 4,000,000 mark in one or two months afterwards, but the general trend was upward until the apex was reached in December, 1921, as above related. Since then the decline has been gradual, but almost steady, until now, with the month just past, the curve has reached the lowest it has known since that holiday month of 1921. In that month there was cleared to the United States 14,557,975 bbls. That also was a record.

The subjoined statement for March, 1927, is self-explanatory and is as follows:

FROM TAMPICO

By Huasteca Petroleum Co

Mar. Rig, Vessel and Destination	Bbls.
1 Ss Matinicock, New York	76,659
1 Ss C. E. Harwood, Jacksonville and Tampa	†35,233
3 Ss P. H. Harwood, New York	*66,215
4 Ss Comet, Galveston	*17,422
5 Ss Meline, New Orleans	65,314
5 Ss Mary Luckenbach, Boston	*48,469
8 Ss O. D. Bennett, Jacksonville	*49,211
11 Ss Invergoil, Southampton	*57,190
11 Ss H. G. Wylie, Houston	*40,173
16 Ss Comet, Tampa	*16,099
16 Ss Comet, Tampa	†4,724
18 Ss Elisha Walker, Providence	*69,828
18 Ss Norman Bridge, Providence	*41,017
19 Ss C. E. Harwood, Jacksonville	†35,149
20 Ss F-Sulphur 6, Tampa	*39,249
20 Ss H. G. Wylie, Port Tarafa, Cuba	*39,683
23 Ss Ballhill, New York	*60,172
23 Ss Mendocino, New Orleans	65,419
24 Ss C. A. Canfield, Baltimore	63,416
24 Ss Harold Walker, New York	*67,713
25 Ss G. W. Barnes, Thameshaven	†73,400
25 Ss O. D. Bennett, Baltimore	48,510
26 Ss Iverurie, Southampton	*57,184
26 Ss Inverleith, Southampton	*56,273
28 Ss Fred. Ewing, Boston	*66,026
29 Ss P. H. Harwood, Boston	*65,216
30 Ss E. L. Doheny, Portland	*60,322
Coastwise deliveries	*48,836
Coastwise deliveries	†14,174
Bunker deliveries	110,321
Total	1,558,617

By Mexican Eagle Oil Co., Ltd.

Mar. Rig, Vessel and Destination	Bbls.
4 Ss San Quirino, Rio Janeiro and Bahia Blanca	†44,975
3 Ss Mackworth, Brazil Ports	*28,693
5 Ss Nelson, Key West	*39,508
6 Ss Appleleaf, Key West	*34,747
9 Ss Pearleaf, Key West	*34,366
12 Ss San Valerio, Nassau f/o	*32,979
12 Ss San Valerio, Nassau f/o	†25,815
15 Ss Vancouver, Key West (asphalt)	23,144
16 Ss Santa Aurora, Nassau, (asphalt)	35,142
16 Ss San Antonio, Key West	*46,196
18 Ss Matador, Rotterdam (asphalt)	18,260
19 Ss San Leopoldo, Pernambuco and Rio Jan.	†15,375
19 Ss San Leopoldo, Pernambuco and Rio Jan.	*19,485
22 Ss Kotonia, Belize and Guatemala	†5,559
23 Ss Appleleaf, Key West	*35,615
23 Ss Antiochia Hamburg, (asphalt)	5,756
26 Ss Essex Druid, Argentine	†21,695
26 Ss Essex Druid, Argentine (asphalt)	5,214
27 Ss Pearleaf, Key West	*34,054
30 Ss San Silvestre, Nassau f/o	†42,733
30 Ss Breedijk, Antwerp, (asphalt)	33,778
Coastwise deliveries	†107,834
Bunker deliveries	66,929
Total	757,852

By Mexican Sinclair Petroleum Corp.

Mar. Rig, Vessel and Destination	Bbls.
7 Ss Madrono, Nuevitas and Tarafa	56,0
10 Ss Gene Crawley, Neuvitas	29,6
10 Ss A. E. Watts, Havana	68,2
19 Ss W. L. Connelly, Puerto Barrios, C. A.	30,0
22 Ss A. E. Watts, Matanzas	*69,6
23 Ss Madrono, Cienfuegos	*56,5
25 Ss Gene Crawley, New Orleans	30,8
26 Ss Harry Farnum, Cienfuegos	31,0
26 Ss T. J. Williams, Southampton	49,7
29 Ss Mirita, Cienfuegos	55,4
Bunker deliveries	15,8
Total	492,7

By Cia. Mexicana Holandesa La Corona, S.A. Royal Dutch-Shell)

Mar. Rig, Vessel and Destination	Bbls.
1 Ss F-Sulphur 6, New Orleans	40,9
2 Ss Atheltarn, Bahamas f/o	57,7
4 Ss Vaba, Cuba	49,3
16 Ss Caloric, Bahamas f/o	57,7
17 Ss Lampas, Bahamas f/o	47,7
18 Ss Federal, New Orleans	28,5
24 Ss Clement Smith, New York	70,2
25 Ss Caloria, Puerto Padre, Cuba	39,8
26 Ss Plumleaf, Bahamas f/o	34,2
27 Ss T. J. Williams, Southampton	26,8
28 Ss Scot. Standard, Bahamas f/o	54,9
29 Ss Durango, New Orleans	36,1
Bunker deliveries	60,5
Total	602,9

By Transcontinental Petroleum Co.

Mar. Rig, Vessel and Destination	Bbls.
3 Ss Princeton, Santiago	45,8
17 Ss L. J. Drake, Baton Rouge	63,3
17 Ss Ardmore, New York	77,9
Bunker deliveries	31,9
Total	219,0

By Mexican Gulf Oil Co.

Mar. Rig, Vessel and Destination	Bbls.
3 Ss Ligonier, Savannah	30,3
10 Ss Currier, Port Tampa	40,8
22 Ss Gulf, Breeze, Galveston	64,2
23 Ss Ligonier, Savannah	30,1
Bunker deliveries	7,6
Total	173,2

By La Espuela Oil Co.

Mar. Rig, Vessel and Destination	Bbls.
22 Ss F-Sulphur 1, Freeport	17,3
27 Ss Matinicock, Charleston	76,6
31 Ss F-Sulphur 6, Freeport	19,5
Total	113,5

By The Texas Company

Mar. Rig, Vessel and Destination	Bbls.
14 Ss Alabama, Port Neches	26,7
19 Ss Texas, Port Neches	50,6
19 Ss Texas, Port Neches	†7,7
Bunker deliveries	5
Total	85,7

By East Coast Oil Co.

Mar. Rig, Vessel and Destination	Bbls.
1 Ss Torres, New Orleans	48,1
Bunker deliveries	3,2
Total	51,4

By New England Fuel Oil Co.

Mar. Rig, Vessel and Destination	Bbls.
23 Ss Manatawney, Providence	48,8

By Panuco Boston Oil Co.

Mar. Rig, Vessel and Destination	Bbls.
19 Ss Torres, Philadelphia	48,7

By Mexican Atlas Petroleum Co.

Mar. Rig, Vessel and Destination	Bbls.
3 Ss Caloria, New York	39,1
Bunker deliveries	2,5
Total	41,6

By Moctezuma Terminal Co.

Mar. Rig, Vessel and Destination	Bbls.
9 Ss Newona, New York	20,8

By Pierce Oil Corp.

Export Bunker deliveries	2,4

FROM TUXPAM

By Mexican Eagle Oil Co., Ltd.

Coastwise deliveries	*47,2
Bunker deliveries	1,2
Total	48,4

MARCH SUMMARY

From Tampico	4,218,0
Tuxpam	48,4
Total March, 1927	4,266,5
Total March, 1926	8,820,6
Decrease March, 1927	4,554,1

DIVISION OF MOVEMENT

To United States	2,269,3
Cuba and West Indies	928,4
United Kingdom	319,0
Mexican Coastwise	218,0
South America	135,4
Continent	57,7
Central America	35,6
Bunkers (to balance)	302,7
Total	4,266,5

CLASSES

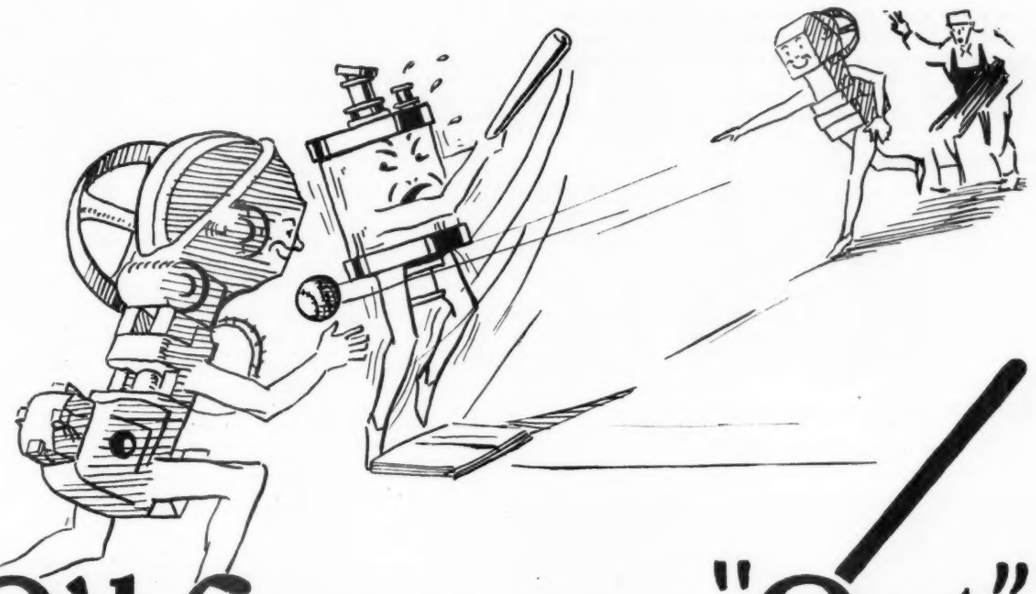
Crude	1,967,8
Topped Crudes	1,416,7
Refined Oils	463,1
Asphalt	116,0
Bunkers (to balance)	302,7
Total	4,266,5

(Note: * Indicates topped crudes; † Indicates refined oils).

LEASES AND OUTPUT IN TEXAS PANHANDLE

By James H. Dameron

AMARILLO, Tex., Apr. 23.—Thirteen producing companies operating in the Texas Panhandle have 1,780,000 acres under leases and the remarkable feature is that the Phillips Petroleum Co. of Bartlesville, Okla., has the largest production, although ranking eleventh in the list of major holdings in Panhandle. Coincidentally, the Amarillo Oil Co. Amarillo, Tex., leads in the list of acreage holders, with 337,000 acres, but has the smallest amount of production. However, that company's holdings are concentrated in the vast Panhandle gas territory and



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The new Gardner Flood-Lubricated Pumps have put over the third strike on grease and oil cups.

No longer is it necessary to oil pumps daily. Simply change oil in the crankcase ONCE A MONTH.

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Haywood-Williamson, Shreveport and El Dorado.
F. W. Heitmann Company, Houston.
International Supply Co., Stores in all principal Mid-Continent fields.
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The Republic Supply Company of California, Stores in all principal California Oil Fields.

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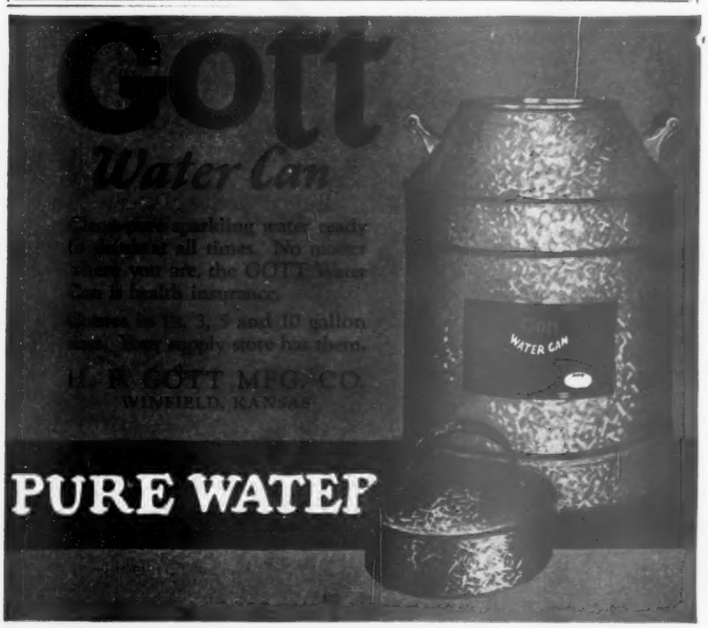

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We have shipped thousands of tons of "Central" Line Pipe, Casing, Drill Pipe and Tubing to some of the largest and most particular oil companies and we take great pride in the fact that all the reports we have received have been commendable. This has convinced us that the quality of "Central" Oil Country Tubular Goods is abreast of the high standard we have attained and maintained in Central Standard Pipe during the past seventeen years.

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Petroleum Equipment Co., Los Angeles, California, and branches
American Supply Company, Mexia, Texas
Standard Supply Co., Inc., Wichita Falls, Texas

the company holds choice acreage in the Carson and Potter County gas territories.

Gulf Production Co. was second in the list with around 235,000 acres. That company has around 10,000 bbls. daily average production in the area from 117 wells. The Phillips company, with 73,000 acres, has around 30,500 bbls. of daily average Panhandle production.

A table of the 13 Panhandle producers with large acreage holdings and their production fellows. The acreage figures are those of an individual operator made recently and the production figures are taken from recent estimated reports:

Company—	Acreage	Production
Amarillo Oil Co.	337,000	25
Gulf Production Co.	235,000	10,255
Humble Oil & Ref. Co.	208,000	420
Magnolia Petroleum Co.	180,000	1,260
Roxana Petroleum Corp.	155,500	1,785
Skelly Oil Co.	100,700	2,780
Pure Oil Co.	94,500	800
Prairie Oil & Gas Co.	79,000	6,110
Texas Company	74,000	865
Phillips Petroleum Co.	72,600	30,680
California Petroleum Co.	57,600	0
Empire Gas & Fuel Co.	54,000	4,145

Some scattered production of various companies may have been left out or the production estimate. The Phillips company and Prairie company figures were reached by dividing the Phillips and Prairie companies joint operations. Also all of the production and acreage of associated companies was added to that of parent companies.

A recent survey of acreage under lease in nine counties and considered conservative shows more than 1,500,000 acres under lease in those particular counties. The survey by no means covers all land leases in those counties and represents only the holdings of 26 companies. Twenty-six counties are in that territory generally designated as the Panhandle.

Moore county, often referred to as the "small oil man's paradise" because of the numerous small tracts there, leads with 293,432 acres under lease.

The following is the list of acres leased in nine counties:

Moore	293,432
Potter	261,480
Hartley	222,265
Hutchinson	158,182
Oldham	153,672
Gray	143,453
Wheeler	111,959
Carson	82,320
Sherman	71,270

PRODUCTION RECORD IN WEST TEXAS FIELDS

WEST TEXAS
DAILY AVERAGE PRODUCTION
Week Ending April 16, 1927

Company and Lease—	Wells	Prod.
Crane County		
Church et al, University	1	115
Church & Weekly, University	1	2,400
Cromwell et al, University	1	1,065
Eastland & Collette, University	3	4,808
Gulf Prod. Co.:		
J. T. McElroy	7	5,310
Crier-McElroy	8	4,566
State-Lasseter	3	3,300
Humble O. & R. Co., University	4	7,770
Independent O. & G., Hughes	1	0
McMan Oil & Gas, Hughes	1	85
Magnolia Pet. Co.:		
Univ.-Hardwick	1	16
Univ.-O'Keefe	5	505
State-Lasseter	2	88
Magnolia Pet. et al, University	4	39
Marland Oil Co.:		
Cowden-A	3	125
Cowden-B	1	148
Durham	3	39
Hughes-C	3	71
Hughes-D	6	975
Hughes-Gibbs	3	35
Prairie Oil & Gas, University	6	522
Simms & Atlantic:		
University-A	4	4,405
University-B	1	90
Stidham & Thrasher, University	1	10
The Texas Company:		
King	9	438
Union Land-F	1	7
Tidal Oil Co.:		
University-B	2	65
University-C	1	82
University-E	1	12
University-F	2	3,249
Totals	88	40,340
Crockett County		
Cromwell et al, Powell	5	150
Gulf Prod. Co.:		
Powell-A	5	60
Powell-D	1	70
J. K. Hughes:		
Powell-A	3	180
Powell-B	1	40
Humble O. & R. and Marland Oil:		
Powell	9	802
Sorg	1	41
Powell-B	1	52
Republic Prod. Co., Powell	2	175
Roxana Pet. Corp., Powell	1	18
Totals	29	1,588
Ector County		
J. S. Cosden	1	20
Garza County		
Emerald Oil Co., J. M. Boren	1	5
Glasscock County		
Texon-Marland, Settles	1	60
Howard County		
Bristow & Merrick, A. J. Hooks	1	95
Choate & Henshaw, O'Daniel	1	4
Comet Pet. Co., H. R. Clay	1	40
Dixie Oil Co., H. R. Clay	1	30
Gulf Prod. Co., Chalk	1	20
Humble O. & R. Co., Douthit	2	54
Lockhart & Co., Chalk and Chalk-A	3	122
Lockhart & Carey, Scott	1	32
Magnolia Pet. Co.:		
Chalk	4	158
Hyman Chalk	2	45
Mary Chalk	4	240
Otis Chalk	7	287
Sarah Hyman	2	79
Sloan Chalk	1	46
Marland Oil Co.:		
Chalk	10	390
Chalk-A	6	285
H. R. Clay-A	2	215
H. R. Clay	2	321
Otis Chalk-B	1	60
Otis Chalk-C	1	45
Otis Chalk-D	1	50
Otis Chalk-E	1	175
Reeves & Apperman, H. R. Clay	1	110
Totals	56	2,918
Jones County		
Atlantic O. P., Howell	1	74
Marland Oil Co., Mason	3	709
Midwest Exp. Co., Thornton	4	511
Phillips Pet. Co.:		
Tessie-Walling	3	465
Winter	2	427
R. M. Beasley	1	98
J. C. Mason	1	290
Totals	15	2,584
Loving County		
Lockhart & Co., Allen	1	25
Mitchell County		
Atlantic Oil Prod., Womack	8	531
California Co., all leases	81	2,618
F. J. Carey et al, E. Morrison	1	12
Eastland Oil Co., all leases	9	336
Magnolia Pet. Co., all leases	19	649
Tidal Oil Co., all leases	2	21
Totals	120	4,166
Pecos County		
Mid-Kansas O. & G.:		
Yates-A	3	340
Yates-B	1	260
Texon O. & L. Co., Yates	1	13
Totals	5	613
Reagan County		
Big Lake Oil Co., University	103	19,790
Texon Oil & Land, University	72	7,940
Totals	175	27,730
Scurry County		
Northwest Oil Co., all leases	4	28
Upton County		
Amerada Pet. Corp., Hughes	5	395
Atlantic O. P. Co., Sherk	1	35
Dixie Oil Co.:		
Burleson	17	2,885
Hughes	10	368
Gulf Prod. Co.:		
Baker	1	5
Baker-B	2	70
Estep	2	0
Hughes	4	90
Lane-C	1	150
Sherk-E	1	60
Humble O. & R. Co.:		
Burleson	4	51
Ricker	3	340
Independent O. & G.:		
Burleson	5	83
Taylor	9	389
Wooley	10	761
McMan Oil & Gas, Baker	1	8
Marland Oil Co.:		
Baker-A	1	32
Benton Land	1	30
Burleson	31	1,155
Burleson-A	3	35
Burleson-B	1	10
Estep	8	640
Hughes-B	1	5
Keith	3	235
Sanger	20	597
Shirley	4	583
Powell	3	427
Shirley-A	1	25
Gibbs	2	230
Prairie O. & G. Co., Lane	4	960
Republic Prod. Co., Baker	5	95
Rio Grande Oil Co., Estep	1	0
Roxana Pet. Corp.:		
Bowen	15	4,050
Estep	3	74
Hughes	10	723
Simms Oil Co., Shirley	3	184
Sun Oil Co., Burleson & Baker	10	370
The Texas Company:		
Burleson	4	66
King	12	352
Texon O. & L. Co., Sherk	1	42
T. P. Coal & Oil:		
Sherk	4	165
Lane-A	6	2,955
Lane-B	1	81
Wentz Oil Corp., Sherk	3	155
Totals	237	19,958
Winkler County		
Southern Crude, Hendricks	2	570
Gulf Prod. Co., Hendricks	1	490
Totals	3	1,060

DAILY AVERAGE PRODUCTION OF THE AMARILLO DISTRICT
Week Ending April 16, 1927

Company—	Wells	Daily Aver.
Hutchinson County		
Alaska Pet. Co.	1	15
Amerada Pet. Corp.	9	650
American Ref. Co.	7	340
Apex Oil Co.	2	600
Atlantic O. P. Co. (was Grimes & Watts	1	30
Badger Oil Co.	2	60
Bain et al	1	120
Barnsdall Oil Co.	2	120
R. G. Barnum	1	10
Black Diamond Oil Co.	1	10
Block Y Pet. Co.	1	0

For hauling heavy loads over soft ground!

Athey Truss Wheel Wagons haul capacity 10-ton loads where ordinary equipment cannot operate.

They make their own roads as they go. Notice how the wheels carrying the load roll on broad steel tracks—not in the sand. Regardless of actual road conditions, Atheys carry their freight on never-ending steel highways.

Constructed with anti-friction bearings throughout, Atheys operate with from 30% to 50% less tractive power. Tractor operating and maintenance costs are cut or the number of teams per load is reduced. Operating delays are eliminated and you can haul every day regardless of weather conditions.

Athey Truss Wheel Wagons are unquestionably the modern, economical means for transporting heavy loads. They solve hauling problems. Write for full information.

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The Baldwin Locomotive Works, Foreign Representatives
Philadelphia, Pa.

ATHEY TRUSS WHEEL WAGON

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We have successfully financed several such enterprises and are desirous of getting in touch with other similar propositions.

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44 Pine Street, New York

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The Byrne Stationary Ventilator. Note the size of the weather guard and its sturdy construction.

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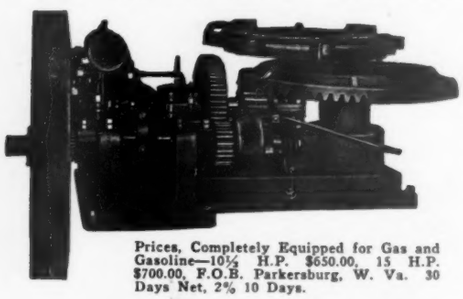

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Blockins & Kistler	2	230
Buffalo Oil Co.	2	120
Canadian River Oil Co.	6	300
Center Dome Oil Co.	2	15
Centerfield Oil Co.	1	5
Coble-Whittenburg	4	330
Continental Oil Co.	1	5
Currie Bros. and J. R. Phillips	4	700
Cockrell & McElroy	5	350
Collier & Taylor	1	10
Delmar Oil Co.	2	20
Derby Oil Co.	8	1,905
Devonian Oil Co.	8	560
Dixon Creek Oil Co.	40	7,225
Double Five Oil Co.	1	40
Douglas Oil Co. and Cline	2	15
E. J. Dunnigan et al	2	210
Echo Oil Co.	3	1,750
Empire Gas & Fuel Co.	27	2,730
Fain-McGaha Oil Corp.	2	170
Fly-Blackburn Oil Co.	2	55
Four Y Oil Co.	1	0
Franterhouse & Wetzel	1	70
Gates Oil Corp. (F. E. Kistler)	4	200
Goldelline Oil Co.	5	500
Gopher Oil Co.	1	10
Golding & Phillips	1	10
Gulf Prod. and Panhandle Ref. Co.	54	5,480
Gulf Prod. Co.	36	4,850
L. R. Hagy	1	0
Heywood et al (Prairie et al)	1	0
J. K. Hughes Dev. Co.	22	1,505
Holmes, Currie & McKnight	3	120
W. H. Holmes	2	160
Homestead Oil Co.	1	10
Hutchinson County Oil Co.	1	5
Dan A. Japhet	5	340
Julian Pet. Corp. (Canyon)	5	805
Kistler Oil Co.	3	450
Kistler & Lenix	2	410
Lenix Oil Co. et al	1	30
J. H. Lenix	1	10
Lenix & Patterson	2	330
Lucky 10 Oil Co.	4	335
Magic 80 Oil Co.	1	25
Manhattan Oil Co.	1	90
Marland Oil Co.	59	4,010
Midwest Exploration Co.	20	3,570
Minnehoma Oil Co. & Kistler	2	505
McMan Oil & Gas Co.	18	1,735
McIlroy & Herring	6	615
S. D. McElroy	4	290
S. D. and W. W. McIlroy	8	740
McIlroy Bros. et al	4	610
J. H. Middleton	4	190
Mudge Oil Co.	1	0
Newby Oil Co.	2	45
New Domain Oil Co.	3	100
Pantex Oil Co. (Westex)	9	1,120
Phillips & Heywood	3	720
Panhandle Oil Co.	1	0
Paramount Oil Co.	1	1,520
J. R. Phillips (Blasdel)	1	0
J. R. Phillips et al	5	1,920
Phillips Pet. Co.	202	24,820
Prairie Oil & Gas and Phillips Pet. Co.	86	12,090
Prairie Oil & Gas Co. et al	3	0
Prairie Oil & Gas Co.	7	0
Plains Drilling Co.	1	5
Pure Oil Co.	3	490
Relief Oil Co.	3	470
Henry Riley	1	90
Riley & Holmes	2	60
Rock Island Oil Co.	1	5
Roxana Pet. Corp.	9	610
Ryan Pet. Corp.	4	300
Skelly Oil Co.	85	2,210
Skiatex Oil Co.	7	850
J. L. Smith	2	200
Smith & Barnum	2	40
Southwestern Oil & Dev. Co.	4	900
Spring Creek Oil Co.	4	550
Summit Oil Co.	3	400
Sunny Jim Oil Co.	5	210
Sunourst Oil Co.	2	100
Sunrise Oil Co.	1	0
J. A. Swindler & Son	1	10
The Texas Company	1	60
Tex-O Oil Co.	1	10
Travelers Oil Co.	2	320
Triangle Oil Co.	5	410
J. D. Ward et al	3	170
White Eagle Oil & Ref. Co.	25	1,490
J. O. Whittington	1	15
Total Hutchinson County	845	99,030
Carson County		
Amarillo Oil Co.	1	0
American Ref. Co.	9	700
Champlin Ref. Co.	2	100
Delmar Oil Co.	1	60
Empire Gas & Fuel Co.	2	120
Gates Oil Corp.	1	5
Gulf Prod. Co.	16	200
Hughes Development Co.	1	125
Magnolia Pet. Co.	1	215
Marland Oil Co.	21	1,680
Marston Oil Co.	1	150
McMan Oil & Gas Co.	6	1,200
Nunn & McAuley	3	850
Parks et al	1	260
Prairie Oil & Gas Co.	1	600
Republic Prod. Co.	1	20
Roxana Pet. Corp.	11	1,890
W. W. Silk et al	3	75
Skelly Oil Co.	3	110
Southwest Oil & Dev. Co.	1	10
Sunny Jim Oil Co.	2	10
The Texas Company	13	450
Total Carson County	100	8,830
Gray County		
Canyon Oil Co.	1	10
Empire Gas & Fuel Co.	3	50
Gulf Prod. Co.	13	985
Humble Oil & Ref. Co.	10	600
Magnolia Pet. Co.	19	530
McMan Oil & Gas Co.	10	725
Marland Oil Co.	1	15
Nabob Oil Co.	1	75
Osborne & Daniels	1	10
Phillips Pet. Co.	7	700
Prairie Oil & Gas and Atlantic & Shamrock	15	1,600
Pure Oil Co.	5	200
Roxana Pet. Corp.	1	35
Sun Oil Co.	3	100
The Texas Company	5	270
Wilcox-Pampa Oil Co.	20	2,105
Young et al	1	10
Total Gray County	114	8,020
Moore County		
Cadman et al	1	0
Potter County		
Amarillo Oil Co.	1	35
Wheeler County		
Continental Oil Co.	3	480
Gibson Oil Corp.	6	505
Laycock et al	1	5
Magnolia Pet. Co.	2	360
Marland Oil Co.	1	630
Mid-Continent Pet. Corp.	1	10
Murchison & Fain	1	35
Mid-Kansas Oil & Gas Co.	3	505
Midwest Exploration Co.	2	10
World Oil Co.	2	40
The Texas Company	1	50
Total Wheeler County	22	2,630
Grand total Panhandle	1,083	118,545

OIL FROM COAL PLANTS PLANNED IN ENGLAND

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 23.—The commercial soundness of plans for the extraction of oil in large quantities from British coal is to be tested by the installation of full size plants in various parts of Great Britain, according to advices from the American consulate-general, London.

A company has been formed for this purpose, registered as the L. & N. Coal Distillation, Ltd. Its chairman claims the low temperature process will obtain from a ton of coal 20 gallons of oil, 6,000 feet of town grade gas and 14 to 14¼ hundredweight of smokeless fuel suitable for use in domestic grate or industrial furnace. It is further claimed that the coal is left in an even more satisfactory state for burning than before treatment.

The new company has taken over the British rights of all patents and processes owned by the Sensible Heat Coal Distillation Co., pioneers in this industry. The best known systems hitherto used are the ordinary gas works and coke ovens, which use high temperature processes. The L. & N. proposes to use what it calls a low temperature process, which has peculiar difficulties but is claimed to have extra commercial advantages. A report on laboratory experiments with a low temperature process for bituminous coal in 1925 indicates that the coke produced forms a satisfactory fuel for most purposes.

The L. & N. company proposes, it is said, to develop the largest oleiferous coal seam in the world, at Morwell, near Melbourne, Australia, in addition to its extraction activities.

RAIL RATE RULINGS ON NATURAL GASOLINE

Two important decisions involving natural gasoline rates were handed down by the Interstate Commerce Commission.

In the case of the Chestnut & Smith Corp. of Tulsa, Okla., and manufacturers of natural gasoline in the Ranger-Breckenridge, Tex., area (Docket No. 15255) the commission refused to authorize lower rates to southeastern points. The commission found that all rates were reasonable except to Brunswick, Ga. The rate to this point was reduced to 58.5 cents per 100 pounds effective June 14 and reparations were awarded on past shipments.

In the second case (Docket 14995) the Phillips Petroleum Co. succeeded in securing lower rates from Bartlesville and other Oklahoma points to Bayonne, Bayway and Paulsboro, N. J., and Olean, N. Y. Reasonable rates were prescribed, effective June 14. The rates to Bayonne and Bayway shall not exceed 72 cents per 100 pounds; to Paulsboro, 70 cents; and to Olean, 61 cents.

HARRY P. DUNN CO., INC.

CHICAGO, Apr. 23.—Harry P. Dunn, formerly of the Sinclair Refining Co. and until recently with the Advanced Petroleum Co., has incorporated the Harry P. Dunn Co., and will continue the marketing of lubricating oils, wax, etc. Mr. Dunn has been an exclusive lubricating oil man for years. He will market among others the output of the Tex-Mex Refinery at Laredo, Tex. His office is at room 902, 624 Michigan Ave.

100 YEARS OF STEEL IMPROVEMENT

Number Two in a Series of Advertisements

"Tom Thumb" the first American locomotive, hauled its first passengers over Baltimore & Ohio tracks on Aug. 9, 1830. It was in this same year that Wolf introduced "Meteoric Steels" to European metal buyers.

THE B. & O. R. R.

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At a time when railroad tracks consisted of short lengths of strap iron nailed crudely to wooden stretchers, a German named Wolf introduced Nickel Steels, under the name of "Meteoric Steels", to European Metal buyers.

The superior properties of these alloys were due to the presence of Nickel—a fact recognized by their sponsor, who had attempted, synthetically, to duplicate meteorites which were also known to contain Nickel.

The many years of Nickel Steel development have contributed to an extensive fund of information concerning the superior properties and many uses of these Alloys. You are invited to consult our engineers and thus draw upon these helpful data.

SOME STANDARD APPLICATIONS OF NICKEL ALLOY STEELS

Armor Plate	Ordnance
Axles	Railway Track Work
Boiler & Fire Box Plate	Roller Bearings
Boiler Tubes	Shafts
Bolts, Nuts, Rivets, etc.	Shovels
Castings	Special Tools
Crank Shafts	Steel Mill Rolls
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Questionnaire Sent Oil Companies for Data on Corrosion

Oil companies throughout the United States will receive a questionnaire this week from the temporary committee on corrosion of the American Petroleum Institute of which Frank N. Speller is chairman, asking for certain information which the committee feels is necessary to an intelligent consideration of the various phases of corrosion in the oil industry. This questionnaire covers corrosion problems in the production, transportation and refining branches of the industry and copies will be sent to heads of these branches of each company.

The committee would like to have as much of this information as is available before May 15, 1927, so that the data received may be compiled for the meeting of the committee about June 15. In compiling this data the identity of the company supplying such information will not be disclosed except where special permission is granted. The final objective is to find the most efficient and economical means to curtail if not prevent losses directly or indirectly due to corrosion and to supply reliable information of the best means of prevention.

The questionnaire being sent out is as follows:

I. Production Problems.

1. Please give an approximate estimate of the annual loss due to corrosion in the operations of wells by your company. This should include (a) replacement charges due to failure of any part of well equipment, including gathering lines, pumps, valves, screens, liners, tubing, etc.; (b) estimated loss of production due to temporary shutdown or loss of wells; (c) annual depreciation of equipment due to corrosion. State sizes of equipment referred to.

2. Give similar information with respect to storage tanks, including (a) cost of maintenance per annum (including labor, material, painting, etc.); (b) annual depreciation by corrosion; (c) what parts of the tanks suffer most?

Give number and sizes of tanks.

3. List in order of importance the outstanding corrosion problems and the parts of oil well equipment which suffer mostly by corrosion.

4. State what has been done by your company to reduce corrosion and the results in percentage increase in life of equipment. What is present average life of each kind of equipment subject to corrosion?

5. To what cause do you attribute the corrosion in each case?

II. Transportation Problems.

1. Give estimated cost, due to corrosion of pipe line, including (a) renewal of pipe line coatings; (b) lost operating time due to failure of lines and repairs; (c) estimated annual depreciation.

State mileage of each size. State approximately per cent of length of your lines seriously affected by corrosion.

2. Give similar data with respect to storage tanks (average per tank per year) including (a) cost of maintenance (including labor, material, painting, etc.) (b) annual depreciation by corrosion.

What parts of the tanks suffer most in your district? Give number and sizes of tanks in your system.

3. State what has been done by your company to protect pipe lines in various kinds of soil and how much you estimate this protection has lengthened the life of your lines.

4. List marine and tank car corrosion problems in order of importance and state what has been done to reduce such depreciation.

III. Refinery, Manufacturing and Natural Gasoline Plant Problems.

1. Please give an approximate estimate of total annual loss in your refineries due to corrosion on the basis of 1,000 bbls. of crude oil charged per day. This should include (a) maintenance charges; (b) lost time due to corrosion repairs and equipment failures, and (c) average physical depreciation per annum

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EXPERT WELL SHOOTING
For a considerable time now we have been speaking in these columns about EXPERT well shooting. From the number of deep and difficult wells we have recently been called upon to shoot in the Seminole field it is apparent that the producers there believe what we say—that our shooters ARE EXPERTS.
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Big Springs Cross Plains
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THE EASTERN TORPEDO of Ohio COMPANY
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60 SEATS The Waters Gauge Cock

The non-corrosive monel metal nozzle is always clean—self-sealing when handle is released—it can't leak or spit.

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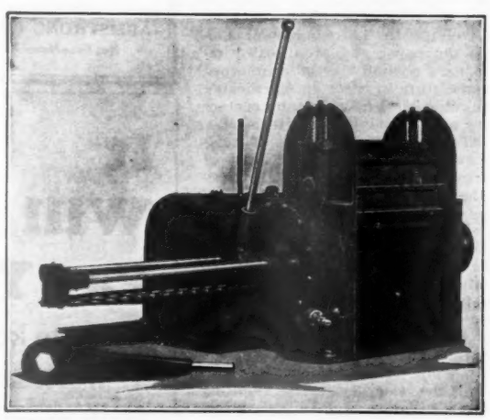
"Bundle Your Scrap for Profit"



Above: The Tempus Scrap Bundling Machine.

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This machine is portable, self-contained, and (like Cox Pipe Machines) ruggedly built for long life.

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from this cause, not covered by maintenance.

2. List in order of importance the outstanding corrosion problems of equipment which suffers most by corrosion with reference to various refining operations.

3. What has been done by your company to combat corrosion and what results have been ob ained in percentage extension of the life of equipment in the various departments by the use of such preventive measures? What is the present average life of each kind of refinery equipment referred to above subject to corrosion?

IV. General.

1. The committee would like to know of any experimental work being carried on or contemplated by your company on these prob'ems.

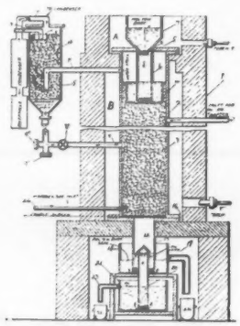
2. Describe any system of records being kept by your company on the corrosion of equipment.

3. Give list of names of technical societies or other organizations working on this problem with whom you have affiliations.

4. The committee would particularly like to have a carefully prepared list of corrosion problems relating to each department (Sections I, II and III above) with these problems arranged in order of importance.

RECENT PATENTS

1,620,075. Process of Converting Oils and Apparatus Therefor. John Collins Clancy, Asbury Park, N. J. Filed April 16, 1924. Serial No. 706,854. 15 Claims. (Cl. 196—54.)



1. In a process of converting higher boiling oils into lower boiling oils, the combination of steps which comprise introducing a stream of a mixture of such higher boiling oils and aluminum chloride into the upper end of a sealed retort having a portion thereof maintained at a temperature to effect an oil-cracking reaction therein, delivering into contact with the said oil mixture a stream of a metal chlorid which is capable of holding in suspension a portion at least of the carbon separated out in said reaction, the said metal chlorid being in molten condition, preventing the accumulation of carbon deposits in the retort by allowing said molten chlorid containing such suspended carbon and the unvaporized oil, carrying its quota of separated carbon in suspension, to discharge from the retort, and collecting the evolved vapors of lower boiling oils and aluminum chlorid from the retort.

8. In a process of producing low boiling oils from chlorid sludges resulting from the distillation of high boiling oils with aluminum chlorid the step comprising contacting and commingling said chlorid sludges with a molten mixture of sodium chlorid and zinc chlorid in the presence of hydrogen while said molten mixture is circulating through and into contact with an intersticed mass of nickel packing units a portion at least of the latter being maintained at cracking temperature.

1,621,782. Apparatus for Treating Crude Oils. Harry A. Hopkins, Taft., Calif. Filed February 16, 1925. Serial No. 9,457. 3 Claims. (Cl. 196—3.)

1. In an apparatus for dehydrating

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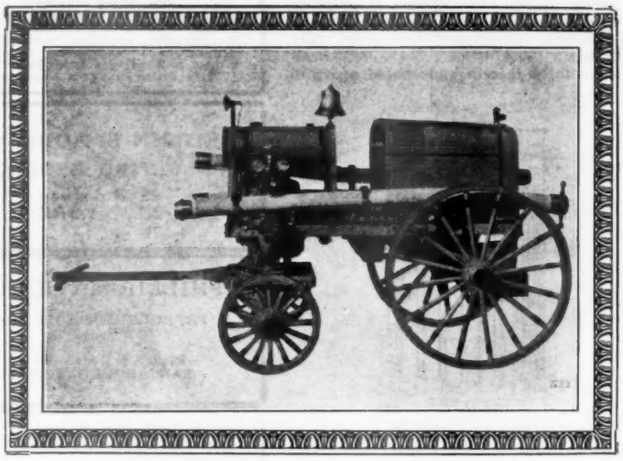

Portable fire pumping unit, with 350 gallon capacity, built by Northern Pump Company, Minneapolis. Power from the Lycoming motor is transmitted through a Twin Disc Clutch.

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Tampa, Fla.—Motive Parts Co. of Florida, Inc.
Detroit—Whitney Brothers, 6464 Epworth Blvd.
New York City—E. George & Co., Broome & Wooster Sts.
Raleigh, N. C.—Motor & Equipment Co., 215 E. Davie St.
Cleveland—James R. Howell, 6715 Quimby Ave.
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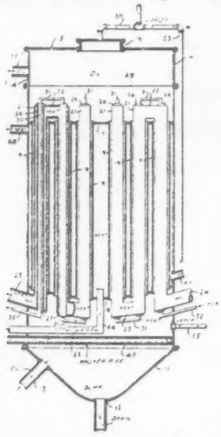
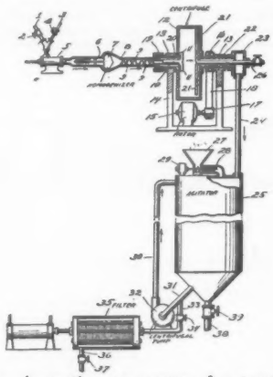
and cleansing crude hydrocarbon oils, including a casing divided into upper and lower oil chambers with a heating chamber interposed therebetween, a plurality of open-ended tubes connecting the oil chambers, each of said open-ended tubes having a plurality of tubes concentrically mounted therein and spaced apart to



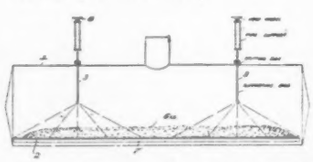
form a plurality of heat and oil passageways, the oil passageways opening at their ends into the oil chambers, the heat passageways being connected together to form a continuous conduit, said conduit having heat inlet and outlet openings, and means to cause a circulation of oil from the lower oil chamber upwardly through the tubular passageways to the upper oil chamber and outwardly therefrom.

1,621,475. Method and Apparatus for Treating Petroleum Hydrocarbons. Walter M. Cross, Kansas City, Mo. Filed November 24, 1924. Serial No. 751,849. 3 Claims. (Cl. 196—40.)



1. A continuous process for treating hydrocarbons, consisting in combining the oil with an acid to form an intimate mixture, limiting the period of contact to a predetermined length of time of approximately one-half minute to prevent polymerization of the oil, separating the oil from the acid sludge by mechanical separation.

1,622,452. Still. Henry M. Lasher, Kansas City, Kans., assignor to The Kansas City Gasoline Co., Kansas City, Kans., a Corporation of Kansas. Filed July 1, 1920. Serial No. 393,424. 1 Claim. (Cl. 196—104.)



The combination of a still for cracking hydrocarbons and a rack, means for suspending said rack within the still and means for adjusting the vertical position of said rack, said adjusting means being operable from without the still, and stuffing boxes through which said suspending means pass.

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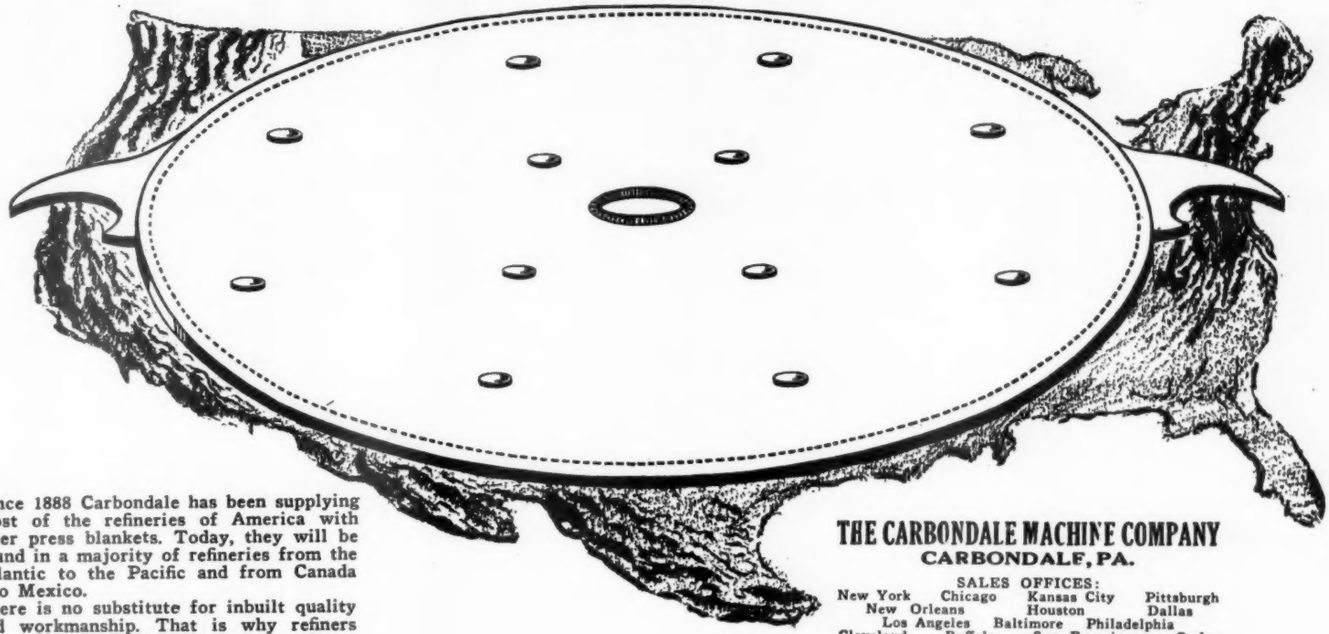
From Coast to Coast



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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for February

	Monthly Bbls.	Daily av. Bbls.
*Prairie Pipe Line Co. ..	3,976,000	142,000
Gulf Pipe Line Co.	1,272,393	45,443
Texas Pipe Line Co.	844,129	30,147
Magnolia Petroleum Co.	1,797,182	64,214
Empire Pipe Line Co.	951,598	33,986
Cosden Pipe Line Co.	871,459	31,124
Sinclair Pipe Line Co. ..	1,719,928	61,426
Other lines	11,676,000	417,000
Total February	23,108,690	825,340
Total January	24,093,948	777,224
Difference	985,258	48,116

Shipments

§Prairie Pipe Line Co. ..	4,736,228	169,151
Gulf Pipe Line Co.	1,153,214	41,186
Texas Pipe Line Co.	921,847	32,923
Magnolia Petroleum Co.	1,212,370	43,300
Empire Pipe Line Co.	904,514	32,304
Cosden Pipe Line Co.	793,035	28,323
§Sinclair Pipe Line Co. ..	2,353,022	84,036
Other Lines	10,360,000	370,000
Total February	22,434,230	801,223
Total January	23,273,458	750,756
Difference	839,218	50,467

Stocks

*Prairie Oil & Gas Co.	28,500,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line & Gypsy Oil Co....	7,530,595
The Texas Company	3,494,852
Magnolia Petroleum Co.	3,920,312
Empire Pipe Line Co.	2,635,741
Cosden Pipe Line Co.	2,447,619
*Sinclair Crude Oil Purchasing Co.	18,750,000
Carter Oil Co.	14,238,562
*Other Lines	10,000,000
Total February	93,518,283
Total January	90,410,600
Difference	3,107,683

*Estimated. §Prairie Pipe Line shipments include Texas crude and Sinclair Pipe Line Shipments include Wyoming, Texas crude.

NOTE—Stocks do not include approximately 3,200,000 of crude oil held in storage on private tank farms and leases and approximately 2,280,000 bbls. of Texas Panhandle crude in storage in Oklahoma and Kansas.

EASTERN PIPELINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for February and March:

	Feb. '27	Mar. '27
Nat. Transit.	139,482.60	163,378.72
S. W. Pa. P. L.....	86,131.61	100,592.96
Eureka P. L.	360,073.04	416,053.14
Buckeye P. L. (Macksburg)	306,133.22	360,086.67
Buckeye P. L. (Cleve.)	9,641.18	12,262.69
Buckeye P. L. (Lima, etc.)	118,280.53	136,642.07
Indiana P. L.	10,398.90	10,472.58
Cumberland P. L.	253,098.35	276,896.95
N. Y. Transit	20,720.01	24,065.99
Tidewater P. L.	166,244.50	189,659.31
Pure Oil	150,656.96	175,516.93
Emery P. L.	50,806.49	57,577.05
Paragon Dev.	27,518.82	29,944.63
Pittsburgh P. L.	5,450.00	5,324.14
Stoll Ref.	11,799.41	12,195.78
Total 1,716,345.62		1,960,669.62
Daily average ...	61,298.06	64,247.41

Note—Indian Refining Co., also reported other receipts of 377,549.03 bbls. Paragon Refining Co. had other receipts of 105,958.30 bbls. Paragon Development had other receipts of 2,451.55 bbls. Pure Oil had other receipts of 19,243.43 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for February and March:

	Feb. '27	Mar. '27
Nat. Transit	301,540.53	341,407.93
S. W. Pa. P. L.....	332,520.45	394,577.29
Eureka P. L.	189,712.61	186,306.27
Buckeye P. L. (Macksburg)	143,321.85	162,229.20
Buckeye P. L. (Cleve.)	736.84	1,218.35
Buckeye P. L. (Lima, etc.)	766,275.55	851,500.60
Indiana P. L.	899,418.14	995,741.13
Cumberland P. L....	149,258.83	128,346.83
N. Y. Transit	124,606.31	97,577.19
Northern P. L.....	149,470.27	161,689.55
Tidewater P. L.....	118,783.21	108,290.33
Pure Oil	137,941.11	158,078.86
Emery P. L.	48,549.33	55,643.19
Paragon Ref.	125,377.69	103,362.66
Indian Ref.	296,628.10	329,602.47
Paragon Dev.	29,126.84	35,811.95
Pittsburgh P. L.....	6,213.32	5,715.31
Total 3,878,949.98		4,147,099.11
Daily average	138,533.93	133,777.39

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky, at the close of February and March were as follows:

	Feb. '27	Mar. '27
Nat. Transit	1,009,705.83	987,165.64
S. W. Pa. P. L.....	746,374.61	716,181.84
Eureka P. L.	1,326,061.87	1,438,177.29
Buckeye P. L. (Macksburg) ...	435,819.09	457,603.45
Buckeye P. L. (Cleve.)	76,981.10	41,573.95
Buckeye P. L. (Lima, etc.)	3,227,532.22	3,545,161.61
Indiana P. L.	584,982.76	592,303.39
Cumberland P. L..	606,176.77	583,281.33
Southern P. L....	420,485.22	458,081.93
N. Y. Transit.....	661,277.88	803,826.11
Northern P. L....	426,553.78	485,204.86
Pure Oil	459,193.89	498,169.44
Emery P. L.	6,932.77	7,599.54
Indian Ref.	91,489.53	141,081.41
Paragon Dev.	11,007.61	8,085.46
Pittsburgh P. L...	3,679.88	3,449.67
Total 10,119,162.36		10,794,043.63
Increase	401,159.36	674,881.27

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of February and March showing the gross stocks of the above fields:

	Feb. '27	Mar. '27
Penna.	3,708,705.44	3,731,445.01
Lima	788,170.33	810,425.15
Kentucky	1,056,674.37	1,067,209.97
Mid-Continent	4,451,184.17	5,041,917.37
Illinois	104,428.05	143,046.13
Total 10,119,162.36		10,794,043.63

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
Jan.	62,638	56,831	55,630	56,209
Feb.	68,023	60,606	60,394	61,298
March	68,721	60,575	61,644	63,247
April	71,058	63,062	63,019	.....
May	63,942	59,217	60,580	.....
June	63,230	61,270	64,131	.....
July	64,208	62,639	63,206	.....
August	59,942	59,686	61,815	.....
Sept.	62,930	62,510	64,639	.....
Oct.	64,976	60,995	62,704	.....
Nov.	56,282	59,350	61,774	.....
Dec.	55,814	57,974	58,755	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
Jan.	145,518	157,889	156,056	141,227
Feb.	148,732	160,863	159,488	138,534
March	147,098	154,591	150,239	133,777
April	147,611	151,429	152,371	.....
May	134,997	146,995	160,998	.....
June	143,010	149,467	160,257	.....
July	124,187	161,338	160,945	.....
August	123,120	161,730	151,929	.....
Sept.	127,325	156,719	158,915	.....
Oct.	123,170	145,388	161,132	.....
Nov.	124,400	143,582	152,668	.....
Dec.	151,392	150,162	136,428	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
Jan. 11,353,276		9,859,170	9,718,003
Feb. 11,192,924		9,579,354	10,119,162
March 11,158,297		9,438,292	10,794,044
April 11,062,082		9,806,851	.....
May 11,207,562		9,531,757	.....
June 11,093,796		9,585,904	.....
July 11,067,453		9,734,687	.....
August 10,974,481		9,668,947	.....
Sept. 10,781,783		9,433,732	.....
Oct. 11,086,850		9,269,806	.....
Nov. 11,066,158		9,257,667	.....
Dec. 10,458,445		9,454,512	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipmts.	Stocks
1926—			
March	2,754.62	1,732.77	13,841.30
April	3,137.40	4,519.68	12,459.02
May	2,943.29	2,096.35	13,295.96
June	3,217.62	1,655.15	14,858.43
July	3,025.86	4,075.11	13,809.18
August	2,886.59	2,121.31	14,574.56
Sept.	2,788.18	3,373.06	13,985.68
Oct.	2,991.86	2,307.75	14,671.25
Nov.	2,810.60	1,664.55	15,817.31
Dec.	2,847.52	5,561.11	13,103.72
1927—			
Jan.	2,641.54	1,470.42	14,274.84
Feb.	2,764.30	1,082.82	15,956.32
March	2,587.20	1,878.56	16,664.96

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, April 1.....	2,642,060.25
Runs from wells	698,541.65
Other receipts	255,909.08
Regular deliveries	462,602.82
Other deliveries	528,766.18

The amount of Illinois oil run by the Tidewater Pipe Co. in March was 29,052.26 bbls. and deliveries were 92,344.61 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1926—		
March	753,300.74	524,625.95
April	610,957.04	487,604.00
May	682,416.87	498,456.90
June	693,102.34	558,054.94
July	713,490.66	490,092.82
August	701,795.92	555,766.59
September	688,798.66	516,083.05
October	681,648.96	531,467.39
November	651,263.33	498,439.37
December	668,909.58	587,947.61
1927—	Runs	Deliveries
January	623,421.93	530,985.98
February	595,831.16	476,950.71
March	727,593.91	554,947.43

Tide Water Pipe Co., Ltd., also delivered in March 255,560.39 bbls.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
November	6,400	16,600	27,623	23,523	17,300	91,467	.....	.....	.....	.....	.....	91,467
December	13,645	7,129	33,645	7,419	9,774	77,613	.....	.....	.....	.....	.....	77,613
January	5,097	8,258	26,390	15,932	14,807	70,355	.....	.....	.....	806	806	71,161
February	26,214	3,036	32,750	3,571	18,250	83,821	.....	.....	.....	.....	.....	83,821

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
November	14,867	7,167	55,967	5,700	27,433	111,133	18,133	36,200	2,600	2,900	58,733	169,866
December	13,484	10,613	56,129	7,452	24,064	110,742	12,548	40,742	2,903	10,839	67,032	177,774
January	16,032	8,226	64,387	4,065	31,064	123,774	7,903	43,629	.....	4,123	55,645	179,419
February	12,000	14,429	87,286	5,321	26,714	145,750	4,786	46,786	2,143	3,607	57,322	203,072

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
March:	Month	18,825,786	14,312,886	11,014,238	3,384,887	5,115,837	1,889,636	3,161,250	2,349,000	61,003,520
	Daily average	608,283	461,706	355,298	107,577	165,027	60,956	101,976	108,032	1,967,536
April:	Month	18,091,771	14,468,190	10,799,760	3,320,120	5,127,510	1,959,570	3,221,404	3,183,000	60,191,325
	Daily average	603,059	482,273	359,992	111,004	170,917	65,319	104,239	106,100	2,006,327
May:	Month	18,667,144	14,507,008	11,940,797	3,516,640	5,482,939	2,231,938	3,459,489	3,317,000	63,122,955
	Daily average	602,166	467,968	385,187	113,440	176,869	71,998	111,596	107,000	2,036,224
June:	Month	18,269,417	14,073,610	11,782,200	3,346,470	5,064,760	2,206,830	3,437,905	3,365,000	61,546,092
	Daily average	608,981	469,117	392,740	111,549	168,822	73,561	114,597	112,167	2,051,536
July:	Month	18,748,199	14,657,482	13,983,759	3,682,257	5,019,892	2,173,813	3,336,664	3,420,000	64,917,076
	Daily average	604,619	472,822	451,089	118,557	161,922	70,123	107,634	110,323	2,094,099
August:	Month	18,765,080	14,618,236	17,093,586	3,681,436	4,878,191	2,190,739	3,467,597	3,329,560	68,024,465
	Daily average	605,325	471,556	551,406	118,756	157,361	73,896	111,538	107,726	2,194,338
September:	Month	18,104,954	14,466,510	17,580,106	3,450,060	4,603,230	2,079,840	3,141,123	3,330,000	66,755,817
	Daily average	603,498	482,217	586,003	115,002	153,441	69,328	104,704	111,000	2,225,194
October:	Month	18,966,058	15,730,689	19,001,388	3,714,637	4,626,138	2,166,559	3,071,720	3,398,000	70,664,189
	Daily average	611,808	507,119	612,948	119,827	149,198	69,889	99,088	109,613	2,279,490
November:	Month	19,173,128	16,876,950	18,593,160	3,593,490	4,289,480	2,054,911	3,242,587	3,216,000	70,649,706
	Daily average	639,104	562,565	619,772	119,783	142,316	68,497	94,753	107,200	2,354,990
December:	Month	20,276,950	17,882,908	19,763,591	3,654,156	4,266,189	2,018,734	2,658,301	3,313,000	73,823,829
	Daily average	654,095	576,868	637,312	117,876	137,619	65,120	85,752	106,871	2,381,414
1927—										
January:	Month	20,184,872	19,030,745	18,546,990	3,668,223	4,076,469	1,905,570	2,610,302	3,322,500	73,355,772
	Daily average	651,125	613,896	598,290	118,332	131,499	61,471	84,203	107,500	2,366,315
February:	Month	17,982,711	19,752,348	16,483,392	3,349,416	3,574,256	1,784,104	2,385,125	3,007,200	68,318,462
	Daily average	642,240	705,441	588,689	119,622	127,652	63,718	85,183	107,400	2,439,945
	Total 12 months	226,051,070	190,367,462	186,572,861	42,221,902	56,133,891	24,662,244	36,793,578	39,570,200	802,373,208
	Daily average	619,318	521,554	511,159	115,677	153,792	67,513	100,804	108,412	2,198,283

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